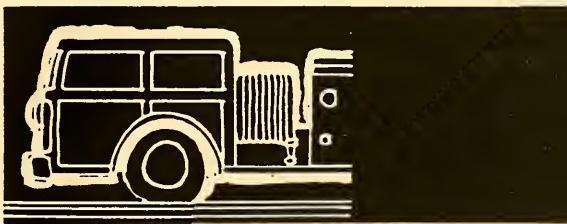


**Fire  
Defense  
and  
Emergency  
Response**



FEDERAL EMERGENCY MANAGEMENT AGENCY

NETLRC 38



**FIRE DEFENSE AND EMERGENCY RESPONSE**



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Clarendon County, South Carolina

### **Region**

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Atchison County, Missouri  
Gentry County, Missouri  
Holt County, Missouri  
Nodaway County, Missouri  
Worth County, Missouri

### **Incorporated Areas**

Devil's Lake, North Dakota  
Flagstaff, Arizona  
Forest Grove, Oregon  
Godfrey, Illinois  
Madeira Beach, Florida  
Princeton, Massachusetts  
South Charleston, Ohio  
Williamsburg, Pennsylvania

### **Unincorporate Areas**

Longmont Fire Protection District, Colorado  
Seymour, Tennessee  
Springlake Fire Protection District, California



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## INTRODUCTION

"I'm sorry," says the Fire Chief in his office at headquarters, "but I can't stand by and let 400 people into that old building!"—"I know, I know, we've been over all that before. But I'm the one responsible, not you and not the Mayor—I'm sorry, too, Mr. Francis. Good-bye."

The Chief, thinking to himself..."Why can't I make him understand? That old building should be condemned! It has blocked doors, rickety fire escapes, tinder-dry planking, and turn-of the-century wiring. It's a wonder it has stood this long."

Sometime later—"Hello, Mayor Jones? This is County Supervisor Frank Johnson. Say, I was wondering when we could get together to talk over your town's part in the new emergency medical program that has been pushed on us by..."

"And so, ladies and gentlemen," the Mayor says, "we are faced with a choice. Mr. Rudolph's position as the real estate developer is that he is ready and willing to break ground today on the new shopping center. We can certainly use the new jobs and property taxes and the sales taxes that the shopping center will bring in. But we also have to consider the recommendations of our Fire Chief. Chief Gregg has made it clear that our fire department cannot adequately protect the new shopping center if it is not sprinklered. Mr. Rudolf says he won't do that. And you heard Chief Gregg's estimate on the cost of building, equipping, and manning a new station. Our decision is going to affect growth for years to come in the west end of town. What are we going to do?"

A local man, to his wife—"I've been looking at our budget again, and it looks like things are going to be a little slim this year. Inflation has been eating away at my salary. I read in the paper tonight that property taxes are going up again—it's all those departments demanding bigger budgets—what do they do with it?—the Fire Department is the worst of all; every time I drive by the station the firemen are sitting around watching all the taxpayers drive by."

The Fire Chief, to the City Manager—"Of course we'll try to hold the line on expenditures, but it's unrealistic to expect that we can do that without cutting services. Everything is costing more now."

An architect to the Chief—"I don't understand what you mean! The fire detection system in this building is one of the best in any building in the area." "But what good is it going to do," the Chief asks, "if I can't get anyone there in time? It'll take the closest engine at least 5 minutes to respond to that building. Those thermal detectors you've used can take as long as 14 minutes to detect a fire. Add 5 minutes for response, and a fire will have a 20-minute head start. But, smoke detectors can cut that detection time down to about 3 minutes, plus 5 to respond; now that would give us a chance."

Is your community like that? Is it, like the six blind men in the Hindu Fable each describing his impressions of an elephant on the basis of his feeling only a single part (leg, trunk, tail, etc.), so busy looking at one problem at a time, it somehow fails to see the big picture? Fails to see the real problems and best solutions? Can anything be done? Yes! Fire defense and emergency response planning is one thing that will help. Should your community do planning then? Probably, but keep in mind that a decision to fire/emergency plan must come from broad (political and citizen) community support, not from one or two individuals. It won't do much good to make up a plan that no one will buy; "No one asked me about that, I didn't agree to that!"



This Guide is about making Fire Defense and Emergency Response Plans for fire prevention and control (which add up to fire protection). It is designed to help people interested in improving local fire protection through the use of basic systematic procedures. Following the procedures should result in finding out:

1. What are the real fire problems?
2. What are the causes of the problems?
3. What are the possible solutions?
4. What are the best solutions?
5. What action will be taken?

Community involvement is an important element in the fire/emergency planning process. Early citizen participation and support can do much to air concerns and avoid misunderstanding. The community as a whole needs to understand what fire/emergency planning is and what it is not. The people must not feel threatened by the planning process; they should feel that they are a part of it and have a say in what happens. Also, the political, business, and civic leaders must be convinced. Planning will take a lot of work and some of the decisions will be difficult, but the results are likely to be well worth the effort.

This Guide is intended to be used in a number of settings ranging from rural areas and communities without any significant groupings of people and businesses to moderate-sized cities, of say, up to 50 or 60,000, and regions containing a number of small cities and communities. This Guide should be used by any group that believes it will work for them; however, a set of companion guides and procedures addresses the more complex fire protection problems associated with large cities and highly urbanized areas containing a number of cities and communities with many common boundaries. These documents address organization and data-collection issues in various settings and provide a handbook for continuous use in the complete process of systematic fire protection planning.

Other sources in the Master Planning library include:

Arson Program Master Planning

Emergency Medical Service Master Planning

Fire Defense and Emergency Response Planning Bibliography

Fire Defense and Emergency Response Planning Resource Directory

Hazardous Materials Master Planning

Multijurisdictional Fire Protection Planning

Some terms or concepts you may not be familiar with are explained in the section at the back of the Guide, beginning on page 54. Concepts are described in text whenever they are first introduced.

With the foregoing ideas in mind, examine the next few pages for some key points worth noting before beginning the planning process.



## FIRE PROTECTION SYSTEM DEFINED

To better understand fire prevention and control as a workable system, consider the term "fire protection" as defined by the National Fire Protection Association (Reference 1):

"Fire Protection. The science of reducing loss of life and property by fire, including both fire prevention and fire extinguishment by public or private means. Also, the degree to which such protection is applied."

This definition recognizes a collection of activities (for fire prevention and for fire control) and of system elements (public and private) as being included in the idea of fire protection. The word "system" merely suggests an organized (and planned) arrangement of the things and services. Webster's Dictionary defines a system as:

"An organized or established procedure. A group of devices, or artificial objects or an organization forming a network especially for distributing something, or serving a common purpose (telephone system) (heating system) (park system) (highway system) (fire protection system)."

Fire protection has long been thought of as a service that is provided by a fire department in the form of men and fire engines speeding to the scene of a fire, a rescue, an automobile accident, a drowning, a child trapped in a well, or a cat up a tree. As far as it goes, this is an accurate view, but, however important the mobile equipment is, there is much more to fire protection than putting out fires and rescuing people. Although not generally recognized as such, a perhaps more important part of fire protection is a system where people and equipment work together to prevent fire. For example, if there were no fire prevention-oriented building codes, and if people were not reasonably aware of fire danger, fire losses would be immeasurably greater and fire suppression forces would be overwhelmed.

In a typical community, each of the following organizations is a part of the fire protection system:

1. **Fire Department.** Performs rescue, fire extinguishment, arson investigation, emergency medical services, and routine fire prevention activity such as inspection code enforcement.
2. **Building Department.** Administers and enforces building codes (including NFPA 101 Code for Safety to Life from Fire in Buildings and Structures) in new construction and old construction undergoing remodeling.
3. **Road or Street Department.** Constructs, marks, and maintains traffic corridors (roads, bridges, access design) for motor vehicle use, including fire apparatus. These departments are a source of bulldozers, road graders, water tanks, and other heavy equipment useful in times of major fires.
4. **Law Enforcement Agencies.** Function in arson investigation, arrests, prosecution, traffic control, and other police action necessary in times of major fires.
5. **Water Department or District.** Supplies and distributes water for fire extinguishment.



6. **Rescue Squad.** Administers emergency medical care and transports fire and accident victims.
7. **Public and Private Schools.** Sponsors public awareness programs in fire prevention and control to educate children and adults.
8. **Telephone Company.** Telephones and other alarm circuits.
9. **Planning Commission.** Determines zoning, which influences the spread of fire.
10. **Ambulance Service.** Emergency medical services and victim transport services.
11. **Citizens.** A personal concern and responsibility for themselves and their neighbors.

Note that the fire department is but one of several organizations in every local government which influence fire protection. More often than not, the fire department deals with fires resulting from factors which are the responsibility of other local governmental organizations or of individuals. Clearly, both human motivation and education are concerned here, but they are not the exclusive responsibility of the fire department.

#### FIRE DEFENSE AND EMERGENCY RESPONSE PLANNING

Fire protection generally has not been considered as a system which can be defined, directed, and controlled; that is, fire defense and emergency response planning has not been applied to fire protection. The fire service has tended to rely on bigger and better firefighting forces, resulting in a labor-intensive situation with rapidly escalating costs. As property values and population densities have increased, losses have also continued relatively unabated despite increased firefighting forces. Valid alternatives usually have not been addressed. Planning is the key to adequate fire protection, but the planning must be done at the local level. Without local considerations, the planned fire protection system is likely to be poorly suited to local needs and to be slow to react to changing local requirements. For example, the safety features of building and fire codes have historically been adopted only after disastrous fires or after major commitments have been made to firefighting-based protection. Our Nation's communities are being challenged to control or reduce costs but yet maintain or improve fire protection services—herein lies the challenge facing fire defense and emergency response planning.

On October 29, 1974, the 93rd Congress of the United States of America enacted Public Law 93-498. This Federal Fire Prevention and Control Act created within the Department of Commerce the National Fire Prevention and Control Administration (NFPCA), which is now the Federal Emergency Management Agency (FEMA). FEMA's United States Fire Administration (USFA) is charged with the awesome task of reducing the Nation's fire loss. In consequence, as one major campaign, FEMA's USFA is fostering and encouraging the development of fire defense and emergency response plans at all government levels—federal, state, community, and rural. These Plans are best prepared by the people who must live in the fire environment; that is, the planning is best done for and by the responsible jurisdictional level, whether it be the state, city, or crossroads community. As a result, the original framework of the plan has changed through implementation and utilization by communities. Since the basic plan provides a structure



for identifying and analyzing community needs, as these needs change, the program components and options change. The plan's jurisdiction has grown to include the area of disaster preparedness. The focus has expanded from fire prevention and suppression to include emergency response components in order to achieve a more comprehensive and effective application. The necessity of this community approach was recognized by the National Commission on Fire Prevention and Control in its final report, America Burning. Recommendation Number 10 of that report states:

"The Commission recommends that every local fire jurisdiction prepare a Master Plan designed to meet the community's present and future needs in fire protection, to serve as a basis for program budgeting, and to identify and implement the optimum cost-benefit solutions in fire protection."

This recommendation has been incorporated into action in the legislation. The Act devotes an entire section to Master (now called Fire Defense and Emergency Response) Plans. Quoting in part:

"Sec 10(a) GENERAL—The establishment of master plans for fire prevention and control is the responsibility of the States and the political subdivisions thereof. The Administrator is authorized to encourage and assist such States and political subdivisions in such planning activities, consistent with his powers and duties under this Act."

This planning guide is intended to assist in fire prevention and control planning in any community; however, other, more comprehensive guides will address the fire protection problems of urbanized areas and the state's role in direct and indirect aspects of fire protection.

What is a Fire Defense and Emergency Response Plan? Again, quoting from the Act:

"—a master plan [fire defense and emergency response plan] is one which will result in the planning and implementation in the area involved of a general program of action for fire prevention and control. Such master plan is reasonably expected to include: (1) a survey of the resources and personnel of existing fire services and an analysis of the effectiveness of the fire and building codes in such area; (2) an analysis of short- and long-term fire prevention and control needs in such area; (3) a plan to meet the fire prevention and control needs in such area; and (4) an estimate of cost and realistic plans for financing and implementation of the plan and operation on a continuing basis and summary of problems that are anticipated in implementing such plan."

But a Fire Defense and Emergency Response Plan is also much more than this. A Fire Defense and Emergency Response Plan represents broad community participation in defining and accepting a level of fire protection service with full knowledge of the risks involved—the plan incorporates conscious identification and community acceptance of a real level of fire risk. The level of risk is clearly stated in a set of objectives, which are approved by the community through their selected, not necessarily elected, representatives. These representatives constitute citizen involvement in the preparation of the Plan—truly a democratic process.



The Plan provides authority and direction for the actions necessary to achieve the objectives. While a Fire Defense and Emergency Response Plan is not law, it is a statement of community policy. Local ordinances may thus be passed to implement and enforce the intent of the Plan.

The Fire Defense and Emergency Response Plan provides an organized approach to defining, obtaining, and maintaining the level of fire protection, and the consequent fire prevention and control system, desired by the community. The Plan:

- Defines the current and future fire protection environment by establishing and maintaining a comprehensive data base;
- Defines accepted life and property risk levels by setting goals and objectives;
- Defines the fire protection system which provides the level of service commensurate with the level of accepted risk;
- Identifies and justifies the resources necessary to develop and operate the fire protection system;
- Provides a detailed program of action to implement and maintain the system.

Last, but not least, the Fire Defense and Emergency Response Plan is a policy guide for managing the fire environment through the fire protection system. Because it is future looking, the Plan provides policy in advance of change; permitting control of, rather than reaction to, the fire environment.

### **Why Do Fire Defense and Emergency Response Planning?**

Each community will have its own reasons stemming from its unique situation. Perhaps the most important reason is to provide direction and active change to fire protection through the definition and achievement of goals and objectives, which together establish the future character of fire protection in the community. Setting the goals and objectives is, in this planning approach, a process in which the community plays a large part; and in so doing becomes involved in fire protection, and identifies with the community's needs.

The cost of fire protection is receiving close attention these days, as are costs of all other community services. Identifying costs, reducing costs, increasing fire protection for the same cost, and justifying improved service level and associated costs are all valid reasons for doing Fire Defense and Emergency Response Planning.

Fire Defense and Emergency Response Planning permits control of the recognized fire situation, instead of reaction to an undefined fire problem. By controlling the fire situation, costs can be managed and life safety may be increased. Another reason for planning is to increase awareness and participation in fire protection. More awareness and participation will most certainly result in increased understanding and acceptance, by the community as a whole, of the need and the means to reduce life and property loss resulting from fire.

A Fire/Emergency Response Plan can provide the incentive and identify the means for obtaining and maintaining information concerning the fire environment in the community, at present and in the future. By acquiring and regularly updating a data base



containing information on the risks (what there is to burn) and the fire system management aspects, a continuously current picture is maintained of what the fire protection system must protect. Use of fire/emergency planning should become a way of life, which will result in the use of effective management and planning techniques at many levels of government administration. Incorporation of the Fire Defense and Emergency Response Plan as an element of the General Plan (if one exists) puts fire protection problems and solutions right up front for everyone to see. No longer will fire prevention and control be something that just the fire department worries about, but it will become a matter of awareness and concern for everyone in the community.

## VARIATION IN FIRE PROTECTION

Fire Protection service levels and coverages tend to be quite different in different parts of the nation, particularly in small communities and rural areas. That there is variation is in itself not too important, because actual needs vary from state to state and from location to location. In fact, portions of rural America may need little or no organized fire protection.

In most instances where a recognized local need has produced some fire protection, the emphasis is on putting out fires rather than on helping people (1) to prevent fires and (2) to reduce the chances of injury or property loss should a fire occur. The National Commission on Fire Prevention and Control underscored and explained this tendency to think of fire suppression as being fire protection:

"For years fire chiefs and local governments have been listening to one outside voice telling them how to improve their fire services. That outside voice has been the score their community receives on the Grading Schedule of the Insurance Services Office. The Grading Schedule was devised as a tool to assist in setting fire insurance rates for each community. It was not intended as a guide to fire protection decisions, although circumstances have invited that kind of use. When a community's score has indicated that two or more fire engines would earn it a lower insurance rate, local governments have felt pressed to buy them."

(Reference 2)

An indication that change is taking place is found in the next statement from the same report:

"Now local (government) administrations are beginning to recognize that their community interests and those of the Grading Schedule do not necessarily coincide. The Grading Schedule, for example, is directed primarily toward preventing property losses. Death and injuries are also prevented as a result of this concern, but they are not the foremost consideration."

## FIRE PROTECTION COSTS AND WORTH

Whenever a movement is begun either to establish fire protection or to improve the existing services, voices may be raised in alarm. Often the citizens express the feeling that the proposed changes are too costly. Similar exclamations are frequently heard about the costs of maintaining the existing levels of protection. One reason for the belief that fire protection may be too costly is that people may not understand what fire



protection really is. They are not sure whether the protection they pay for is the protection they need or whether they are paying more than their fair share. Sometimes folks feel the fire department is not worth supporting because they seem slow to respond or because of "horror" stories they have heard.

Fire protection may cost a lot, especially when taxes, insurance, water supply system, and other costs are considered, but it shouldn't cost more than it is worth to you. The cost should be acceptable to those who must pay for it, as must the risk of loss that goes along with the level of protection paid for.

Careful system planning offers the best approach toward balancing system cost with fire protection needs as reflected by the thoughtful desires of local citizens. Involving citizens in the planning process provides the opportunity to inform them regarding fire protection costs, benefits, and risks and thereby gain their support for implementing a fire protection system of known performance and cost. This matter of cost and worth is no small problem, but it is the basis for justifying the expense of needed fire protection.

### **Cost of Fire Protection**

Determining the cost and worth of fire protection has traditionally been difficult. Few communities actually try to measure such things; consequently, few know the true costs of operating a fire protection system. The expenses of running an organized fire department are regularly calculated, but they are by no means all the costs of fire protection. Here are a few of these "other" costs:

- Water distribution and maintenance costs for pipes, hydrants, and plant capacity and operations used for fire protection;
- Fire insurance costs;
- Costs for in-place fire protection such as sprinkler systems and smoke and heat detectors;
- Private fire brigades.

In addition, the costs of administering building and fire codes, building permit and inspection programs, and other similarly oriented fire protection programs, must be included.

### **Worth of Fire Protection**

Determining the worth of a fire protection system presents similar problems. For example, many communities calculate their fire losses, but few consider such opposite factors as: What savings result from the existence of their fire protection system? How many buildings did not burn and how many lives were not lost? What industries exist in the area because of a favorable fire protection system and acceptable insurance rates?

An adequate fire protection system is sure to be worth more than an inadequate system, but there are no universal criteria for evaluating adequacy. For example, to one community, adequate fire protection may mean achievement of a specified response time



and water flow for 90% of the fires; to another, that may not be enough and they will strive to add inspections of all commercial buildings at least once a year.

## USE OF AVAILABLE RESOURCES TO IMPROVE FIRE PROTECTION

Some ways fire protection can be improved, even if resources are relatively scarce, include inexpensive programs of action to raise everyone's level of fire awareness, reduce the number of existing hazards, and improve citizen self-help fire control capability.

In communities where public funds can be made available, you may wish to consider the value of expanding fire programs beyond first principles to include:

- Public education programs designed to reach all citizens, such as children in their formative years, senior citizens, and other special groups that need attention in your community, through regular classroom instruction and group lectures and demonstrations;
- An active and constructive fire inspection program, coupled with the public education program, organized with the intent to remove common and not so common fire hazards;
- An active fire-cause investigation program;
- A smoke detector installation and maintenance program;
- A fire extinguisher program designed to put portable extinguishers into homes and places of business, and to teach everyone how to use them;
- Better water supplies and distribution;
- A highly mobile, citizen-staffed, fire control force. A plan similar to that developed by the Tennessee Valley Authority (TVA) might have application in your area (Reference 4).

## THE PLANNING PROCESS

Having read the planning Guide this far you may ask why, after all these years, is it necessary to go to all this effort when we really know what needs doing. There are some pretty good answers to that question. True, fire protection in many cities, small communities, and rural areas is known to be inadequate, in most places, by urban standards. And if concepts don't change, it is likely to remain so, especially in the face of rising costs and intense competition for what funds are available. But now there are some alternatives that have never before been available—low-cost and effective smoke detectors are common in stores now, and you can expect inexpensive, do-it-yourself sprinkler systems soon. Furthermore, wonders can be accomplished at small cost by a well-organized, diversified (all segments of the government and citizenry), largely volunteer effort. That is what this Guide is about—an organized effort involving all parts of the local governments and the citizens of the area.

If you follow this Guide step by step, a plan will result. It will only be worth as much as the community, and its public officials, is willing to commit to it. As the



planning process proceeds, no matter how fast or slow, the need for commitment and support must be kept constantly in mind, else the Plan will fail. The Plan must be practical, which in no way prevents it from being forward looking and innovative.

Before getting started and collecting data, look ahead to the suggested Fire Defense and Emergency Response Plan outline contained in Step 10 (Document the Fire Defense and Emergency Response Plan). Then, as you go along, prepare all information with an eye to the final plan and to how you will put the plan into action; it will be easier that way.

The steps in the planning process suggested by this Guide are illustrated in Figure 1 and described briefly below.

- **Step 1**—This first step accomplishes the following tasks:

- Review the need for authorization to begin fire/emergency planning;
  - Determine whether the assistance of local professional planners will be used;
  - Establish a preliminary working team;
  - Establish a proposed work schedule;
  - Adopt a policy on writing up planning results as you go along;
  - Learn how to hold effective meetings and how to get the opposition involved.

- **Step 2**—This step analyzes the area to be protected in terms of:

- Local fire history;
  - Fire risks in the area now and expected in the future;
  - Available fire protection resources;
  - Fire protection activities which are, or should be, going on now;
  - Citizen attitudes toward fire protection.

- **Step 3**—This step analyzes the local chances for successful fire/emergency planning on the basis of:

- Support of elected officials;
  - Statutory authority;
  - Citizen support;
  - Successful completion of Step One.



- **Step 4**—This step selects a planning committee representing the broad cross section of community fire protection interests.
- **Step 5**—This step analyzes current and expected community fire protection needs and sets approved fire protection goals.
- **Step 6**—In this step, the desired local fire protection system concept is defined through a process of:

Setting objectives that lead to achievement of the fire protection goals;

Determining the possible programs for meeting each goal;

Selecting a set of "best" programs, and other system characteristics, and thus defining the system concept.

- **Step 7**—This step analyzes the legal aspects of the selected fire protection system concept. This is the point where the need for new or revised statutes will be determined (this step should be performed in conjunction with Step 6).
- **Step 8**—In this step the cost of implementing the fire protection concept is determined (this step should be performed in conjunction with Step 6).
- **Step 9**—The method of financing the startup and ongoing maintenance of the fire protection system is determined in this step.
- **Step 10**—This step prepares an approved Fire/Emergency Response Plan document.
- **Step 11**—The Fire Defense and Emergency Response Plan is put into action by:

Assigning implementation tasks to responsible community individuals or agencies;

Carrying out the tasks;

Maintaining the Plan;

Evaluating the progress toward accomplishing the goals.

Writing up your Plan as you obtain results from each planning step with an eye to subsequent implementation is a good practice. This practice is illustrated in Figure 1 by dashed lines feeding from each step to Step 10 (page 12).

Be sure to again read through the instruction portion of the Guide once or twice before beginning the actual planning.



### Milestones In Fire Protection Planning

- 1 Define the Situation
- 2 Set Goals and Objectives
- 3 Select Programs and Policies
- 4 Approve and Implement Plan
- 5 Evaluate

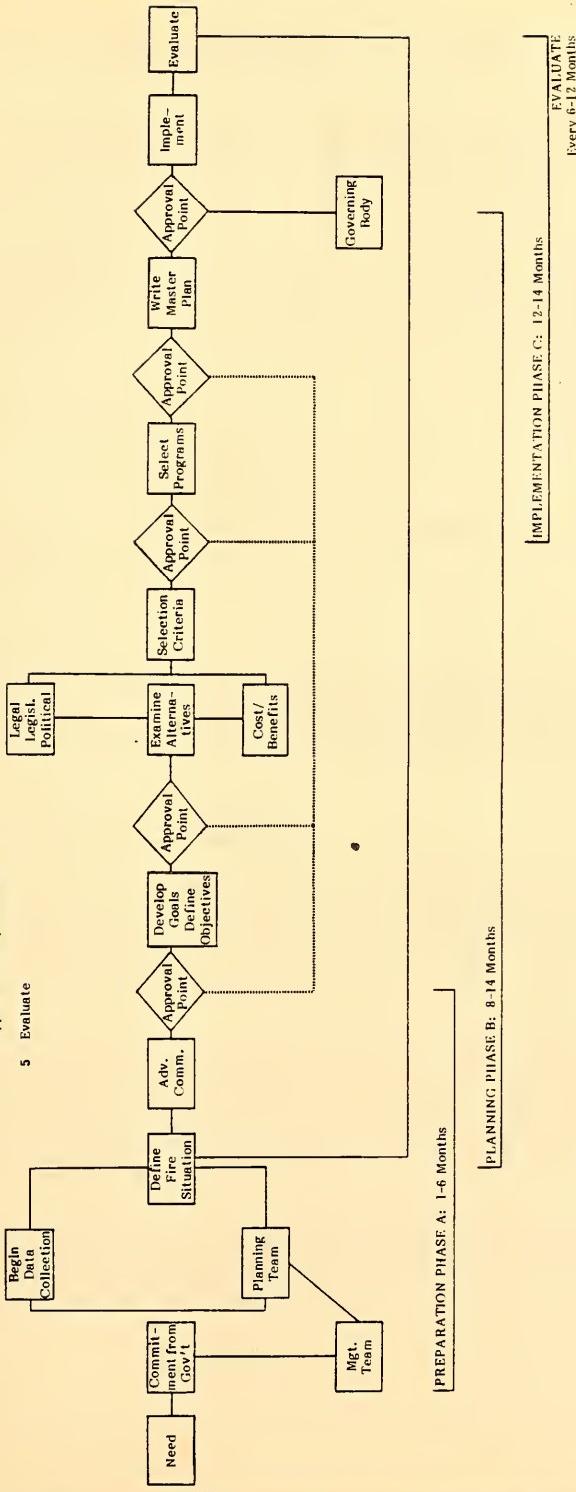


Figure 1. Planning Process Chart



# PART 1: PRELIMINARY STEPS

This section contains guidelines to help you get started in fire defense and emergency response planning in a way best suited to your needs, considering:

1. The kind of fire protection you have now,
2. The willingness and ability of the local government(s) and the people in your area to carry out the planning effort,
3. Your judgment of how detailed and technical you want your planning process to be.

Figure 2 is a summary of the planning tasks.

## STEP 1: GETTING STARTED

Several things should be accomplished in this first fire/emergency planning step to make the subsequent work easier.

### REVIEW PLANNING STEP ORDER

Review your situation in the community to find out whether you might need approval from some authority to begin the fire/emergency planning process. If formal approval to begin is required, then you should start with Step 3 first. On the other hand, if you find out that you can begin the planning without formal approval, then do Steps 1, 2, and 3 in the order given.

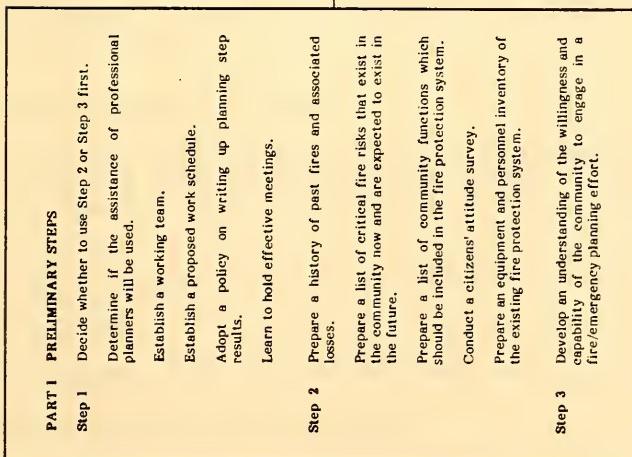
### LOOK FOR PROFESSIONAL PLANNING ASSISTANCE

The use of professional planners is not necessary for doing fire/emergency planning using this procedure. However, most fire protection planning programs would benefit from their assistance. True, most planners know little about the fire problems of a specific community, but they are trained in the ways to go about gathering the information needed to identify problems and to determine solutions.

An excellent source of such assistance to many communities is the regional council of governments or planning commissions serving the area. Contact the council or commission director and ask for his assistance. Town and county administrators sometimes have planners on their staff who could be of help, and many counties and cities have planning departments. Check the possibility of getting a local business leader's help. Such a leader would not only have a direct interest in fire protection but might also be experienced in long-range planning techniques.

If you can get help, be sure you know how to use it. Do not let a professional planner or anyone for that matter, take the planning over and do it by himself. The planning must be done by the community itself. Don't hesitate to try to use outside help, but if it does not work out, do not fear to go it alone.





**Figure 2. Summary of Planning Steps**



## **FORM THE WORKING TEAM**

Establish a preliminary working team to get the project started. This team will do all planning work up to Step 4, when the planning committee will be established. Plan on including some of the working team members on that committee to maintain continuity of the planning effort.

The team should have two to five members, or more, and should include fire service personnel because they will be most familiar with the fire history, the fire protection resources inventory, etc. Care should be taken, however, to include others beside fire personnel, to ensure a community perspective in the preliminary planning steps. Be sure to talk to people who are likely to be concerned about the project—you may well develop strong supporters that way. Talk to your local press and arrange for news coverage for the team and its progress.

Before selecting the team, take enough time with each prospective member to discuss the fire/emergency planning project and come to an agreement about what needs doing and that person's role. Remember that fire defense and emergency response planning will be a new idea to most of the community. It may not be fully understood and may, therefore, have to be approached a piece at a time. It is generally better to receive information a little at a time, with time for the subconscious mind to sort things out. Each person chosen to serve as a team member should share the firm commitment to carry on the planning activity in the spirit and intent of the fire defense and emergency response planning concept.

## **PREPARE A PROPOSED WORK SCHEDULE**

The working team prepares a proposed work schedule to control the planning project. The schedule should be simple and should realistically reflect the work program as seen at any time. The schedule will be reviewed later by the planning committee, when it is formed, and others at appropriate times. Figure 3 provides a typical schedule that could be applied in almost any community. It covers a nine-month period. Some communities will prepare their first fire/emergency plans in that period, but others may require longer. Your community may complete a plan in less time or more time, depending on its unique circumstances. Don't be overly concerned about this time because it's your first time to prepare a Fire/Emergency Plan and the first time you do anything always takes longer.

## **ADOPT A WRITE-UP-AS-YOU-GO POLICY**

As soon as the results of your planning tasks are known and before moving on to the next step, write up the results, and summarize or otherwise prepare the results in suitable form for subsequent insertion in the Fire Defense and Emergency Response Plan document.

The task writeups should include at least the following information:

1. Date of the writeup;
2. Name of person or committee responsible for the writeup;
3. Identification of the planning step and task;



**4. Description of the results:**

Identification or referencing of all information obtained, used, or prepared;

Analyses performed;

Conclusions from the analyses;

**5. Decisions reached and their justifications;**

**6. Note the task and the date the work is to be performed and reported.**

File the planning paperwork as you go. Ideally, you will have two sets of files. One set should be divided and identified according to planning step and tasks. The other step should be divided and identified according to each major division of your final plan documentation (Step 10). The results of each task should be stored in the second set of files, and the information specifically prepared for inclusion in the Plan should be filed in the Plan file. Additional storage may be required for maps and reference material. Where reference material is already filed in suitable permanent storage (for example, a public library), it may not be necessary to obtain a copy; first summarize what is needed and identify the reference along with its location.

## **HOLDING MORE EFFICIENT MEETINGS**

We all benefit from knowing how to hold more efficient meetings. Appendix D entitled "About Holding Meetings," contains guidelines to:

1. Help with the preparation of information to be discussed prior to a meeting,
2. Help those who lead the meeting,
3. Help those who participate in the meeting.

You may want to make copies of Appendix D and give one to each member of the working team and the planning committee and to others as appropriate. The information is more appropriate for limited meetings than for open meetings where such strict procedures might bridle public discussion.

## **RECAP**

The results of this step should include the following:

1. Selection of the order in which you will deal with Steps 1, 2, and 3.
2. Determination of whether professional planning assistance is available to the project and, if so, who will provide it.
3. Selection of members and establishment of a working team to start up the project and carry on the initial planning steps.
4. Preparation of a proposed work program schedule.



ACTIVITY	MONTHS								
	1	2	3	4	5	6	7	8	9
<b>PRELIMINARY STEPS</b>									
1. Getting started									
2. Identify fire problems									
3. Determine planning environment									
<b>MAKING THE PLAN</b>									
4. Select planning committee									
5. Develop fire protection goals									
6. Define system concept									
7. Determine required statutes									
8. Determine costs									
9. Select a financing scheme									
10. Document fire defense and emergency response plan									
	Continuous whenever results develop								
<b>IMPLEMENTING THE PLAN</b>									
11. Putting the plan into action									
<b>PUBLICITY</b>	▲	▲	▲	▲	▲	▲	▲	▲	▲
<b>SCHEDULE REVIEW</b>				▲					
<b>WORKING TEAM MEETINGS</b>	▲	▲	▲						
<b>MEETINGS OF PLANNING COMMITTEE</b>				▲	▲	▲	▲	▲	▲
	As necessary								

\*▲ Denotes a scheduled event (news media contact, review, meeting).

**Figure 3.** Typical Planning Schedule



5. Development and adoption of policies on writing up the results of each task of the planning steps and the storage of all information.
6. Each person who will participate in at least a planning meeting should become familiar with the guidelines on holding meetings in Appendix D.
7. Preparation of the writeup covering each of the above items.



## STEP 2: IDENTIFY THE PROBLEM

You must identify and analyze your fire management situation and the community in general to determine what your fire protection problems are. Fire protection problems are identified in a variety of ways. Some of the ways that concerned citizens find out about fire problems include:

1. Someone describes a problem that needs attention.

"Why doesn't the fire department have ambulances and paramedics?"

2. People sense that things are not working as well as expected.

The Councilman said, "He has the feeling that no matter how much money is spent on firefighting, it won't have much effect on the fire losses."

3. Some earlier experience alerts us that something needs doing.

"Let's think long and hard before buying that old surplus truck," said the Mayor. "I know one town that spent more money putting an old truck back into service than they could have bought a new commercial brush rig for."

4. Involvement in one problem leads us to the discovery of another one.

"We didn't even realize we had a fire control coverage problem in our town until we began discussing a mutual aid agreement with a volunteer department in the county."

5. Regardless of how a fire protection problem comes to our attention, until someone claims it as a responsibility, nothing gets done.

"We're a market town and most folks outside spend their money here—shouldn't we help them with their fire problems?"

As mentioned earlier, the presence of a problem is often merely sensed. By consciously analyzing your feelings, you may be able to bring the problem into focus. Start this process by attempting to make a statement of the problem situation. Once you can state the problem, you will know that it exists. Get your working team to list all the problems that come to mind, then circulate that list to other people in the community and ask them if there are any more. Emphasize problems, don't try to get solutions until later.

To help identify the fire problem in your community, try to answer the following questions:

- What do people in the community know about fire?
- Do people know how to behave in fires?
- Do we have "high-risk" groups of people in the area?
- What is included in the existing fire protection system?



- What things are now being done by the fire protection system, and what should be done?
- What kinds of fires have occurred, and what losses have resulted from these fires? How could the fires have been prevented or the losses reduced?
- What specific fire risks now exist or are expected to exist in the foreseeable future?
- Is there an increase or a decrease in the population?
- What is the present economic makeup?
- What are the future growth projections, and land use and zoning plans?
- What is the condition of housing?
- What is the projected industrial growth?
- What are the transportation conditions?
- What plans are in existence at community, district, regional, county, and state levels which could influence your planning efforts?
- Answering these questions is hard work. It can't be done on the back of an envelope. Outlined in the next several pages is a step-by-step way to go about collecting and examining information about your fire problem. Most likely you will find both problems and resources that you did not realize were there.

## **EXISTING FIRE PROTECTION SYSTEM**

You will be able to better understand your community's fire protection system if you assemble a set of facts that reveal the situation. To do this, prepare an inventory of the existing fire protection system. Include all items that affect your fire protection. The following list will guide your data collection.

### **1. Maps**

- **Jurisdictions**—Prepare a map showing the present fire protection jurisdictional boundaries. If such boundaries are not formally established, then show the general geographical limits of your interest, and why you chose them. Include any emergency medical services boundaries and mutual or automatic aid areas. In addition, mark the boundaries of any other adjacent emergency services jurisdictions so that the areas covered can be seen.
- **Water Maps**—Prepare maps, as necessary, to show all water sources that could be used in firefighting. Be sure to include:

Water distribution system, including fire hydrants and water-tank fill stations.

Water-drafting locations such as lakes, wells, cisterns, rivers, ponds, swimming pools, etc.



If planning is being done at county or regional level, the water sources should be prepared on a larger scale; for example, water tables, drainage systems, water districts, and river conditions would be of concern.

- Risks—Go out and look at each structure, facility, and anything else that can burn and try to decide how much of a fire risk you have. What would it take to prevent a fire, or, if started, control it? Work out some kind of fire risk severity code (for example; major, average, minimum) for yourself, and mark a map to show where the risks are, individually or in groups. Think about future risks, and put them on the map also.

## 2. Fire Prevention Provisions

- Fire education programs and capabilities.
- Arson investigation capability and policy.
- Fire codes.
- Life safety codes.
- Building codes.
- Building plans check capability.
- Code enforcement capability and policy.
- Building inspection programs.
- Change of occupancy notification and followup programs.

## 3. Fire Department Facilities

- List buildings by:

Type  
Construction  
Size  
Purpose  
Other

- Inventory equipment by:

Personal gear  
Ladder trucks, pumper, tankers  
Generators, pumps  
Alarm system  
Communications  
Hose  
Office equipment  
Other



- List consumable supplies by:
    - Fuel
    - Water additives
    - Dry chemicals
    - Tires
    - Other
4. Fire Service Personnel (list number of personnel and levels of education and training)
- Officers.
  - Paid firefighters.
  - Volunteer firefighters.
  - Emergency Medical Technicians.
  - Maintenance Personnel.
  - Others.
5. Laws That Regulate Fire Safety
- City charter or ordinance.
  - State corporation.
  - Fire protection district.
  - County ordinance.
  - State law.
  - Other state and local laws that affect fire safety.
6. Legal Agreements
- Mutual aid with nearby jurisdiction.
  - Contracted services for fire protection (for example, contracts with counties, fire protection districts, nearby cities, the state, etc.).
  - Civil preparedness (defense).
  - Labor contracts.
  - Others.
7. Budgets
- For last three years, to account for any large capital outlays such as building, pumpers, etc.
  - How financed.



## **FUNCTIONS OF A FIRE PROTECTION SYSTEM SURVEY**

You should understand all the functions of a fire protection system and include them in your considerations. You may find several community activities not generally thought of in terms of fire protection, but which bear directly or indirectly on your needs. For example:

- Does your street and road department consider fire apparatus when designing access routes?
- Does your water agency consider the need for fire hydrants and/or water-tanker fill stations when designing rural water distribution lines?
- Are civic groups like a Women's Auxiliary or the Boy Scouts involved in fire prevention programs (such as public fire-awareness education, home inspections, or home fire alarm or portable fire extinguisher programs)?
- Do building and/or fire codes exist? Are they up to date? Are they enforced? Do the local architects and builders include adequate fire protection features in the structures they build?
- Do building or construction inspectors actually consider fire safety features?
- Do local enforcement people know about "first-aid" firefighting and emergency medical skills?
- Is someone responsible for emergencies involving hazardous materials transported into or through your area?
- Is there a local agency responsible for weed abatement, abandoned buildings, etc.?

Many responsible citizens and local community leaders will have strong opinions concerning proper fire protection functions. Regardless of the functions to be included in your system, you should know about citizen desires. A public meeting for that purpose or a radio or newspaper survey might be undertaken. Seek out any opponents, meet them eyeball to eyeball, and above all listen to their arguments.

For help in identifying fire protection functions, a survey form has been developed. The form is designed to have citizens express their feelings on:

- Which fire protection functions are needed? Not needed?
- Which needed fire protection functions are being performed? Adequately or inadequately? What problems?
- Whether the function is a public or private responsibility.

Have the form filled out by the working team and by as many other interested, responsible, and knowledgeable persons as you feel are necessary. The form is more suitable for use by the working team and by selected individuals than by the general public. The form and instructions for its use will be found in Appendix A.



## CITIZEN SURVEY

The attitudes and concerns of local citizens toward their fire protection must not be overlooked. One way to find out about these is to conduct a survey using questions directed toward determining attitudes. Surveys can be made on a person-to-person basis in small communities or by telephone in larger areas. It is not at all uncommon to find that people do not know who provides their fire protection services or the extent to which they are provided. People often do not know how their fire protection services are paid for. Such knowledge is valuable to your planning. When your house catches fire, it is a cruel blow to learn either that you are not serviced by a fire department or that help will take many anxious minutes to reach you. Yet many people never give fire protection much thought until a fire breaks out.

To aid in conducting a citizen survey, see Appendix B.

## FIRE AND LOSSES HISTORY

Write down the types of fires you have had in your area over the past several years. The longer the time period over which you can develop a fire history, the greater may be your insight into the true nature of your fire problem. Discount any fires that occurred under circumstances that no longer exist. Be careful not to draw too many conclusions if your area, like most communities, has experienced relatively few fires in a year. The important point is whether any grouping or clusters of fires or causes which need attention can be identified.

Here are some questions you might ask:

- Has there been a geographical cluster of fires?
- Have the fires been mostly structural (houses, sheds, barns, stores, etc.)?
- Have the fires been mostly nonstructural (cropland, grassland, trash, forest, etc.)?
- Have the fires been mostly vehicular (automobile, mobile home, boat, etc.)?
- Have the fires been occurring mostly in the day time or at night? On a particular day of the week or day of the month?
- Other special problems or groupings.

Divide the fires into at least the six broad types above. If there is sufficient information on a subcategory (for example, "boat" under "vehicles") then you may wish to break it out. Record as much information on each fire type as you have or can develop. Unless there are already detailed records, you may have to rely on memory, interviews, or on searching accounts of fires in local newspapers to reconstruct your fire history.

Now develop some information on the fires you have identified:

- Response Time—What was the time required to respond to the fires? Were the response times reasonable?



- Delayed Alarms—Were there delayed alarms? What caused the delay? What could be done to reduce the delays?
- Location—Where were the fires located? Were they in town? Out of town? If out of town, how far out? One mile, 5 miles, 30 miles? Was there difficulty in reaching the location? If difficulty was experienced, was it due to weather, terrain, or roads?
- Date (day, month)—When did the fires occur?
- Time of Fire and Available Response—Did the fires occur during the daylight hours or at night? Were there enough firefighters to control the fires? If there were enough firefighters, would there have been a sufficient number of them if the fires had occurred at another time of day?
- Situation of Fires on Arrival of First Help—Were the structures fully involved? Were they restricted to one room? Were they rapidly expanding, smoldering, etc? Could the structure(s) have been saved? The field? Life?
- Cause of Fires—What or who caused the fires? Carelessness? Accident? Defective wiring or appliance? Arson? Lightning? Explosion? Other?

Frequently the cause of fires is listed as being accidental, careless, defective equipment, arson, natural, and so on. A fire may be accidentally started, but that's not enough information to help your analysis. You'll need to know why the accident occurred. For example, take a structure fire that started when the vapor from a tube of model airplane glue ignited. An accident occurred for sure, but the cause might have been due to the individual's lack of fire safety knowledge, poor judgment, or perhaps a preoccupied or otherwise unalert mind.

Another example; following the oil embargo a disproportionate number of the larger gas guzzling automobiles burned. Could these fires have stemmed from economic pressure. Gasoline was scarce and expensive, and the resale market for the large autos was down. Accidents do occur and equipment does fail, but be on the lookout for the true cause. They may be masked, but watch for trends with every new fire.

## Information on Losses

Understanding what kind of losses have occurred will help you to determine what should be in your Fire Defense and Emergency Response Plan. Gather as much information as you can.

- Loss of Life—Record all instances and circumstances of human life loss from fire, including any occupants and those who might have been fighting the fire.
- Human Injury—Determine instances of human injury due to fire, requiring hospitalization or causing loss of productivity.
- Loss of Personal Income—Estimate the amount of personal income which has been lost due to fire. Include loss of wages due to injury or because the fire put people out of work.



- Loss of and Damage to Property—Include a description of each significant fire which involved the loss of and damage to buildings, fences, other structures, crops, pastures, trash, etc.
- Loss of Livestock—Record instances of loss of animal life.
- Loss of Public Income—Determine the public funds which have been lost due to fire. Include such items as property tax, sales tax, etc. For example, consider the loss of public revenues resulting from both the temporary closure and the closing down of businesses due to fire.
- Other Indirect Loss—Erosion to cropland or watershed, medical costs, death benefits, etc.

## FIRE RISKS

A major fire risk is one that:

1. Would result in a large loss of life or property, or
2. Requires the maximum amount of existing fire protection resources (engines, trucks, firefighters), or
3. Would be of great importance to the community in terms of income loss, social disruption, educational or cultural value, etc.

Fire risks include everything in your fire protection area which can burn. Risks can be structural, nonstructural, or vehicular. Of course, it is more important to protect some fire risks than others. For example, a school or factory which is the major source of income for the residents of an area is more important than an abandoned house or the loss of several hundred acres of pasture. On the other hand, there are many less important risks that may represent a relatively constant demand on fire suppression forces. These are important not because of severity but because of frequency. For example, individual fire types such as trash fires, highway fires, restaurant grease fires, and crop and grass fires, may not, by themselves, constitute a critical risk; but when added together, they might represent an unacceptable demand on the fire protection system. Such nuisance fires may be placing a financial burden on the public fire costs that might be more correctly taken care of through actions by and direct expense to private citizens. They also may indicate a need for education and prevention programs.

People can be fire risks, too. Children and old folks represent groups of people in every community that have traditionally been fire victims in disproportionate numbers compared to the rest of the population. Developing action programs that help the very young and old to be fire safe is particularly challenging.

The risks in your area may be simple or complex depending on the size of your fire protection planning area and the conditions that exist within it. For example, if the area is a settlement with only a few hundred residents, determining your fire risks and their relative importance can be a simple task. However, if the area is considerably more complex determining your fire risks can be time-consuming. For example, consider the difficulties that might arise in determining the risk importance under the following conditions.



The area is a city of about 40,000 population. In addition to being the county seat, the city is also a marketing center and the location of three hospitals and two clinics serving an outlying region of approximately 150,000 population.

Regardless of your area's complexity, you will need to identify the fire risks which are or will be the most critical. For example, trucking liquid petroleum products down your roads, the fertilizer stacked in the Co-op's warehouse, the chemicals shipped through town, all should be identified, safeguarded, and considered in developing a risk analysis.

If your community already makes use of projected planning periods for fire or other purposes, you may wish to use those time periods for your projection; if not, consider using at least a one-year period and a five-year period. Try to predict the changes that might occur over each period, and identify fire risks to be expected during each period.

As an example of fire risk projection, suppose a major construction project (such as highway construction or perhaps a shopping center) is planned, to be completed within several years with two years required for actual construction. During the construction period, an influx of construction workers and their families, with some mobile homes, will move in. Heavy equipment, perhaps explosives, can be anticipated. Also, there would be increased trucking of construction supplies, including gasoline and diesel fuel moving in and out of the construction zone and fire protection area. The risks presented by such a project can be foreseen. Fires could occur that would place impossible demands on the local fire protection system; construction accidents are likely to occur. Such large projects are planned years in advance of actual construction, but seldom does anyone consider the fire or other emergency services which might be needed beforehand, while there is yet time to make adequate preparations.

If the risks are planned for, there are things that can be done to lessen the occurrence of fire and injuries and to reduce the consequences if they do occur. The fire department could take fire prevention measures. But other agencies can help. Provisions might also be made in the construction contract(s), building permits, or other means to provide for the necessary additional, though temporary, fire protection resources, until the planned fire protection features are installed and operable.

Business and industrial expectations and projections should be reviewed. These community additions could change the entire scope of a fire department or even require equipment or manpower additions. For example, consider the impact on your community fire protection system if a Liquid Natural Gas (LNG) facility, or other major industrial concern, is built in or near your community.

Any major land development will have to be accounted for in your fire defense and emergency response plans.

Determining your fire problems requires a lot of time and is hard work. It must not be slighted. Otherwise, you will not adequately understand where you stand with your fire protection. The data collected and analysis performed in this step will be the basis of subsequent fire/emergency planning activities. It's a hard job that is worth doing well.

Now keeping the major risk definition in mind, review the risk map you made earlier and identify and categorize the fire risks in your area.



## **RECAP**

The results of this step should include the following items:

1. Preparation of a description of the existing fire protection system, including an inventory.
2. Preparation of a listing of communitywide functions that should be included in the fire protection system.
3. Conduct a citizens' survey to determine attitudes.
4. Preparation of a meaningful history of past fires and associated losses.
5. Preparation of a listing of the major and other important fire risks that exist in the community and/or are expected to exist in the future.
6. Prepare a listing of all the known business and industrial expansions.



### **STEP 3: GET THE GO-AHEAD**

After you have reviewed Steps 1 and 2 and determined that the community's problems are severe enough to warrant a fire defense and emergency response planning program, you will need to take a hard look at your community to find out whether it contains the ingredients necessary to successfully carry out effective planning. The basic ingredients to planning success are:

1. Elected officials who recognize the need for an analysis of fire protection problems leading to the development of solutions and who are willing to make a commitment to fire defense and emergency response planning. This may take careful attention to each elected official to make sure that no misunderstanding exists about fire/emergency planning, how it will be conducted, and who will be actively participating in it.
2. Statutory authority to plan for, form, finance, operate, and maintain local fire protection.
3. General agreement among the area's citizens that improvement in local fire protection is needed and possible.
4. Ability to successfully form a hard-working planning committee who will accept the responsibility to do the planning (Step 4).

Beyond the decision to go ahead with planning, you should consider what level of planning you are likely to be able to carry out. For example, will the local situation accommodate only a relatively simple planning process, or does the environment have the characteristics necessary to support a more comprehensive effort? You may even want to consider again the advanced planning Guides available through FEMA, USFA (see Appendix C for address).

The planning process requires certain resources, independent of those necessary for putting the plan into action. You should prepare an estimate of the resources necessary to carry out the planning process. One way is to study each planning step and try to understand the nature and amount of work and estimate the resources which will be required.

In determining your planning need, consider if there is need for official authorization, such as local, county, or state approval; then by all means obtain that authorization and a commitment to the planning, in writing. One way to get official approval is to make sure before any meeting or hearing that decisionmakers are fully informed on fire defense and emergency response planning matters. If possible, get all questions answered beforehand by talking with each member of the approving body and being responsive to their concerns. Have a one-page statement on the whys of fire/emergency planning, a time table, and an estimate of out-of-pocket expenses and man-hours. Officials are frequently too busy to study in detail all matters on their agenda. When your groundwork is done ahead of time, there is a greater likelihood of getting a favorable response than if the matter hits them cold.

You might find that you cannot get this approval immediately. Perhaps more information is needed or there is opposition to "another dust-gathering." Remember that Fire Defense and Emergency Response Plans are different from the more common "Comprehensive or General Plans." Keep in mind that this planning process is based on



overcoming the traditional planning stumbling blocks; that is, lack of community participation, a piecemeal approach, poor knowledge of subject area, and unrealistic or blue sky solutions.

If you are satisfied that all of the basic requirements (items 1 to 4) are met, plus problems and needs are clearly defined, then proceed.

## **RECAP**

If you have followed Step 3 successfully as outlined, you should have obtained written documentation covering the following:

1. A clear statement of commitment to fire defense and emergency response planning by the elected official(s), and other leader(s) as necessary or desirable.
2. The statutory authority under which the planning is to be done and by which local fire protection can be financed, developed, and maintained.



## PART 2: MAKING THE PLAN

This part of the planning process is devoted to developing goals, problem solutions, and final documentation of the selected plan of action (the Fire Defense and Emergency Response Plan).

Each of the steps (Steps 4 through 10) in Part 2 discusses a specific aspect of planning and considers important related matters. Read through and study these steps to again familiarize yourself with the process.

### STEP 4: SELECT THE PLANNING COMMITTEE

To start the planning, first identify the people who will do the work. Include some or all of the members of the original working team.

#### SELECTING THE PLANNING COMMITTEE

A strongly held view in successful fire defense and emergency response planning is that the fire protection system will be most acceptable to area residents when everyone helps plan for it. For possible committee members, consider representatives from:

1. Common-interest groups—service clubs (Kiwanis, Lions, Rotarians, Elks, etc.), associations (Granges, merchants, builders, etc.).
2. Civic organizations—Boy Scouts, Girl Scouts, Women's Auxiliary, local commissions.
3. Business and industrial concerns.
4. Public agencies—building, police, and sheriff departments; public utilities planning staff.
5. News media—radio and television.
6. Retired persons (American Association of Retired Persons, National Retired Teachers' Association).
7. Other interested individuals.

The planning process takes the approach that "given our present fire protection situation, where should we go from here?," rather than "given our present fire protection situation, where can we go from here?" The word "should" indicates that goals must be set which are reasonable but may seem out of the present reach of the community. Goal statements should be worth working for and not be limited to just what seems "doable" right now.



## **UNDERSTANDING YOUR POSITION**

As an individual concerned about the improvement of your fire protection, you should understand your position on the following points before you undertake any role in the planning process:

- Are you sincerely interested in improving fire protection in your community?
- Do you have adequate time to devote to the planning task you may be called on to perform?
- Are you willing to give your time to the planning tasks?

The planning process follows a logical sequence and doesn't require a great deal of special knowledge or special skills. If you accept a leadership role in the planning process, you should be given the authority to undertake the planning effort (someone else may already have that responsibility) and, if not, know how to go about obtaining such authority. You should also know whether the resources (if any are required) are available (authorized) to carry on the planning effort. Ask your local elected official for assistance in these matters. Your sincere interest is the single factor that can mean success or failure of the planning process.

If you decide, despite a sincere interest, that you are not in the position to take part in the planning process, you might go ahead and study the steps in the planning and evaluate for yourself the benefits. Once convinced of its worth, you can promote the planning process to those people who are in the position to do the planning.

## **THE ROLE OF THE PLANNING COMMITTEE**

A planning committee made up of persons from various community interest areas can effectively organize the fire defense and emergency response planning effort. A committee, carefully chosen, and headed by strong, knowledgeable leadership, will make things happen.

The size and makeup of any planning committee will depend on the prevailing circumstances. Some communities have used large committees (Princeton, Massachusetts used 21 persons) representing all essential portions of the community. Another way would be to have a small committee of, say, a half dozen persons, and let them call in experts as needed. All members should be knowledgeable persons of character and stature, who can enlist the approval and support of fellow citizens and local government officials.

The committee will, in fact, do the planning. The members will: see that the data are collected, analyze the data, work with other citizens and officials, make and justify "system" decisions, decide on and secure financing for the system, make and "sell" the plan.

The success of the planning effort and the subsequent implementation and maintenance of the fire protection system all depends on how well the planned system meets local needs, as viewed by the citizens themselves. Therefore, the importance of a strong planning committee, whose members represent all interests, cannot be overemphasized.



## **PLANNING ASSISTANCE**

Every sector of private enterprise and public service has able managers who can be of help to your planning project. Try to interest such persons in local fire protection problems and invite them to join your planning committee. Managers of larger firms are well suited for the planning effort—choose a busy person to serve (but not too busy to do the work). Look first inside your planning area for the help you need. Contact your local substate authority (county commissioner or equivalent) and ask for his help in obtaining planning assistance; the chances are good that he will help. The commissioner has good communication with state officials, including those of regional planning districts (sometimes called councils of governments that service your area.)

You should contact your state agencies directly to find out if they can help and if they already have state- or regional-level Fire Defense and Emergency Response Plans for fire protection. The State Fire Marshal's Office, the State Fire Training Agency, Regional Council, and State Division of Forestry, are examples of agencies that exist in almost all states. For federal planning technical assistance, contact the Federal Emergency Management Agency, United States Fire Administration (see Appendix C for address). The Fire Defense and Emergency Response Planning Resource Center can also provide information and assistance to local planning teams (see Appendix C for address).

## **SELECT THE COMMITTEE**

Now, after all the preliminary considerations, you are ready to select the persons best qualified to serve as the actual planning Committee.

Experience has shown that most groups will have changes in membership in the course of a year or two. You should be prepared for this possibility, particularly in the key positions on the planning committee, and always be alert for people who can become involved.

## **RECAP**

In this step the following should have been accomplished:

1. The kinds of people that should be on the planning committee—both supporters and skeptics—have been carefully screened.
2. The committee has been formed.
3. Each member understands his role on the planning committee.
4. The role of the planning committee in the fire defense and emergency response planning process is defined.
5. A writeup detailing the planning committee membership and the basis of selection has been prepared. The writeup will be updated from time to time to include any changes that occur, such as the establishment of subcommittees, additions or deletions of members, or changes in membership assignments.



## **STEP 5: DEVELOP FIRE PROTECTION GOALS**

Now that you have an established planning committee to study the community's fire protection problem, the members must decide what they believe to be the main issues and they must clearly set and clarify major goals of the fire protection system. You will also need to obtain the approval of the goals if approval is required. After the goals are established, the committee must define the objectives (in Step 6) and corresponding action programs which lead to the accomplishment of the objectives and goals, and thus, make up the fire protection system concept. Goals are ideals of the future. They can be established.

It is important to establishing goals to understand the relationships of goals, objectives, and action programs. Figure 4 illustrates these relationships. The following points are illustrated:

- There should be as many goals as necessary to cover the problems of the fire protection system.
- Each goal has its own set of objectives. An objective set can have as many objectives as required. Objectives may apply to more than one goal. For example, an objective such as "Establish 20 percent reduction in response time by 1985" could apply to several goals.
- Each objective has its own set of alternate action programs. There can be as many alternative programs as needed. Programs may apply to more than one objective.
- When the best of all possible programs are selected for your system concept, there can be more than one selected program for an objective.

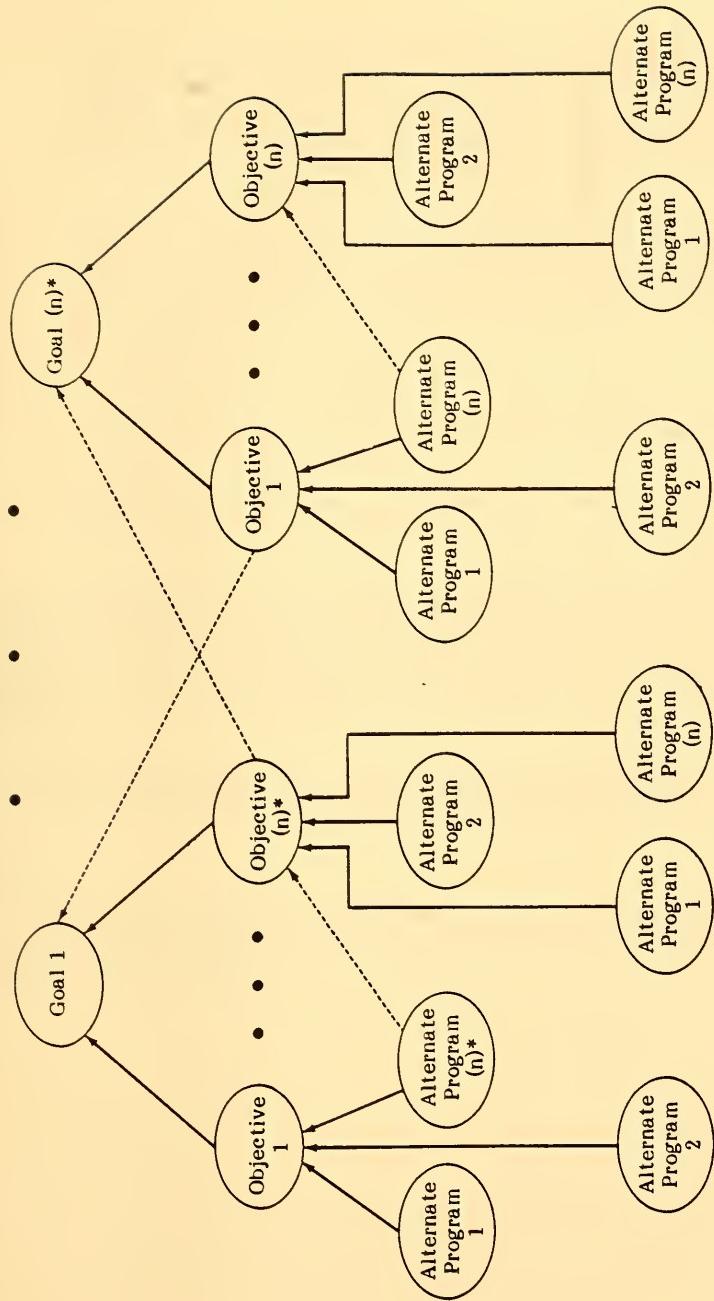
Setting fire protection goals is an extremely important planning step because everything you do after this step is to plan for the achievement of the goals. The process of developing your fire protection goals will create an understanding of the community's desires and needs and will build a firm foundation for the objectives (specific things necessary to achieve goals) and the resulting fire protection concept. So take enough time to understand the needs of your area, and seriously consider how best to satisfy those needs, with an eye to the future.

Review the information previously gathered on your fire problem and system functions, and then think about what kind of fire safety environment you'd like to live in. Your goals then represent the general characteristics of that fire safety environment. They should not be very specific (leave that to the objectives), and you probably won't have much of an idea of when you can expect to accomplish them. You will use the goals in the next step to determine the methods by which they will be met. Some sample goals and related programs will be found in Appendix E.

The following example of a situation may help to explain the goal-setting process:

- Fire Protection Situation—A small town of approximately 7,000 population serving a surrounding population of 4,000 to 6,000. The fire department has both paid and volunteer firefighters and has four pieces of apparatus including two engines, and a 1000-gallon water tanker. A state highway runs north and south approximately 2 miles east of the town.





\*(n) indicates that the number of goals, objectives, or programs may continue to any appropriate quantity (e.g., 1, 2, 3,...n).

**Figure 4.** Relationship of Goals, Objectives, and Programs



- Problem 1—Analysis of fires has revealed that rural firefighting and rescue runs outside the town limits account for more than 60 percent of all fire department responses. Of these rural responses, 57 percent involve transportation-related fires and rescues. Seventy percent of the transportation-related fires involve burning grass as a result of auto collision or carelessly discarded cigarettes. The remainder involve extinguishment of auto/truck fires or rescues.
- Problem 2—There is discontent among the volunteers who must respond to the many minor though potentially dangerous grass fires. The cost of running to these fires is approaching 45 percent of the departmental budget. Furthermore, it appears to be necessary to obtain additional apparatus and manpower if previous levels of fire-suppression service for both town and rural area demands are to be met.

Two goals might relate to this situation.

1. Establish jurisdictional responsibilities and financial support for regional fire protection.
2. Control natural fuel-fire hazards within an enlarged area of jurisdictional responsibility.

Another goal might be "to reduce life hazard in rural structure fires." Goal achievement strategies (one or more objectives) might include programs to encourage the owners of remote dwellings to install early warning devices (that is, smoke and heat detectors). This goal recognizes how difficult it is for a conventional fire department, especially in rural areas, to respond rapidly enough to save remote area people who are unaware of a fire (perhaps because they are asleep) until it has become extremely dangerous.

Some goals may not be achieved for several years. This does not imply that immediate action is impossible—useful things can be done right away.

## RECAP

This step should have resulted in the establishment of the fire protection system goals, the preparing of a carefully worded set of goal statements, and obtaining any approvals that are required.



## STEP 6: DEFINE OBJECTIVES AND SYSTEM CONCEPT

Now you should define the objectives and select the action program from all the courses of action you will consider. However, go on to read this step and the next two since you will need to think about statutory requirements and costs as you define your system. If approval of your system concept is required by some administrative authority, then that approval should also be obtained in this step. Start with each goal and carefully prepare objective statements about what is needed for the goal to be achieved. If the statements do not cover all that must be accomplished, you may find out several years later that though you have achieved each objective some details were overlooked and you are still a long way from accomplishing the goal. The same is true for your action program. You won't achieve your objectives unless the action program adequately defines all actions necessary. Figure 4 (page 35) illustrates the relationships between goals, objectives, and programs. Note that each goal has its own set of objectives (some of which may be shared with other goals) and that the number of objectives should be sufficient to define what needs to be done to reach the goal. Note also that for each objective there will be one or more programs of action to reach the objective.

Using the goals you have previously established, consider what must happen to reach each goal. The "what" in "what must happen" is an objective. Remember that goals are time independent, but objectives are time dependent. Objectives are, therefore, to be achieved within a specified time period you must set. Try to set objectives completion to coincide with each of your planning periods. For example, 0-1 year, 1-5 years, or longer periods.

As noted, an objective is a statement of what needs doing in order to reach a goal. It is not a statement of what specific program of action must be taken. For example, in Step 5 two goals were set for the example given. Now consider these goals and the example objectives, and action programs which follow:

- Goal No. 1—Establish jurisdictional responsibilities and financial support for regional fire protection.

Objective 1—Form a set of fire protection districts completely surrounding the town for the purpose of contracting with the city for rural and grassland fire protection by spring of 19\_\_\_.

Objective 2—Get the city to pass a resolution to provide the regional firefighting services to the fire protection districts by fall of 19\_\_\_.

- Goal No. 2—Control natural fuel-fire hazards within an enlarged area of jurisdictional responsibility.

Objective 1—Get the state to assume responsibility for a grass and weed cutting/killing program on all state highway rights-of-way in the district by midyear 19\_\_\_.

Objective 2—Increase citizen awareness of the roadside fire problem in the enlarged fire protection district area by 50 percent over current awareness level by 19\_\_\_.



For each of your goals, then, prepare a written objective statement that precisely describes what must be accomplished to reach the goal. The objective statement should be specific, such as "a 50 percent reduction in loss in 5 years." The reason for being specific is so that you will be able to measure progress and so you will know whether you've reached your objective.

The following are two typical examples of objective statements that might apply to the goal "to reduce life hazards in rural structure fires" (Step 5).

1. To enact a local ordinance, by the end of year 19\_\_\_\_\_, requiring that smoke detectors be installed in all new structures and retroactively in existing structures whenever they are sold, rented, or remodeled.
2. To enact a local ordinance, by the end of year 19\_\_\_\_\_, requiring that sprinklers be installed in all new or remodeled structures having floor space greater than 3600 square feet. To enact a companion ordinance to provide tax relief or to ensure reduced water rates when sprinklers are installed.

When you describe your fire protection system, you will list each objective and then describe programs of action that could be used to reach it. For example, a sponsor for the smoke detector and sprinkler ordinances must be found, the ordinances written, the benefits publicized, and so on. Also, local merchants might be persuaded to agree to the discount policy for smoke detectors as a matter of public service, or failing that, local government might be persuaded to reimburse the merchants for the discount value. The fire department, or a civic group, might also undertake distribution, installation, testing, and maintenance of the detectors. The methods for accomplishing the sprinkler objective could be described similarly.

#### Steps

- Think of what must happen (objectives) to achieve a goal, and of a number of alternative ways (programs) of making each specific thing happen.
- Describe the objectives and programs in detail.
- Review your objectives and programs and determine which combinations of objectives and programs best suit your needs. Be sure to keep all your goals in mind, and try to keep objectives and programs from conflicting.
- Look at the whole picture—goals, objectives, and programs—to determine if you wish to add, subtract, or change any or all of them.

#### THE TRADITIONAL WAY

The traditional approach to fire protection in most communities and rural areas is not systematic in the sense that a whole fire protection "system" is defined. In traditional fire protection, the fire department is the major source of fire protection, and it frequently operates independently of and perhaps even in conflict with other local agencies such as the road department, civil preparedness agencies, water department, and the building department. This problem of uncoordinated programs can be solved through systematic planning.



Many small fire departments are manned by volunteers, but firefighters paid by call and paid full-time are common in larger communities. Rural fire department response times are generally lengthy compared with city responses. Rural response times of from 15 to 30 minutes are not rare. The two main factors are the built-in delay required to turn out the volunteers and the greater distances rural fire apparatus must travel. Frequently, response distances exceeding 5 miles result in firefighting forces arriving too late to save structures or to stop grass fires reaching advanced stages.

Fire protection available to rural areas is frequently obtained from nearby cities. In general, however, city equipment is not well suited to rural firefighting, and city alarm systems are not generally extended into rural areas. Further, since people detect most fires, the low rural population level often permits fires to reach advanced stages before they are detected. Finally, travel time from a city into a rural area is likely to be quite long, and the city firefighters are likely to be less familiar with the rural area, causing delays in putting out fires. City systems are generally not planned with rural service mind.

Few local governments or citizens have recognized that fire protection is really the responsibility of all citizens and most agencies rather than that of only the fire department. This common view of fire protection has encouraged local governments to plan their fire protection only to put out fires. As a result, the fire department and the various public and private agencies in an area have seldom worked together well enough to coordinate their efforts to improve fire protection. When this happens it is like a team of horses, all harnessed, but with no one at the reins. You may get a lot of action, but not much progress. Some typical examples of this are:

1. Water distribution systems have often been developed without considering adequate water hookups for fire protection needs.
2. Roads and bridges have been built with insufficient load capacity for heavy fire equipment (a 2,000-gallon water tanker can easily weigh as much as 35,000 pounds).
3. Roads are closed, or a water supply is shut down without notifying the fire department.
4. Buildings are constructed which do not meet the intent of life safety codes and without regard for adequate fire protection.

## OTHER WAYS

Here are several other ways of providing fire protection which do not depend on an organized fire department. No one of these would adequately cover all fire protection needs, but they do represent some practical new approaches and are, therefore, the kind of alternatives to seriously consider in planning a fire protection system. Even with limited resources, you can plan some program of action designed to increase fire awareness, reduce existing hazards, and improve citizen fire suppression capability.

### Public Education

Human behavior is a major factor in most fires. People either do not understand the danger in what they do, or they are indeed careless. The truth is that probably both



conditions exist. Evidence that the public is not aware of fire protection is abundant. For example, many do not know how to use fire extinguishers which are available. In another example, gas-fueled water heaters continue to be installed and operated without proper venting.

An effective way for a community to reduce the number of fires caused by carelessness is to raise the level of awareness through public education. However, successful public education programs depend upon specifying problems carefully. It is important to learn who is involved in what types of fires. Then, after the the audiences and problems are defined, some way of delivering the necessary information can be chosen. In some programs, demonstration kits (to teach about fire) have been used at all sorts of public gatherings. Door-to-door personal contact has also been successful in areas which have fire problems. Newspapers, radio stations and television stations are receptive towards local news or programs on fire safety education.

Public education is not the exclusive responsibility of the schools, but classroom instructions are very important. Every child, from kindergarten through high school, should receive regular classroom instruction in the principles and practice of fire protection. Children and young adults, thus, should know about:

1. What to do when fire occurs;
2. Burn prevention and first-aid treatment;
3. Fire causes and how a fire behaves;
4. Fire prevention actions that can be taken by individuals;
5. Basic fire situation assessment and rescue techniques;
6. Fire and smoke detection devices—what they are, how they work, and how they are maintained;
7. Fire extinguishers—types, operation, use, and maintenance;
8. Fire reporting—how to get help and how alarms are handled;
9. How the local fire protection system is organized and how it works.

What a child learns today may become natural to his children tomorrow.

In addition to the public school system programs for children, adults should receive instruction in fire protection. The methods of such instruction must be developed, but the public media is one important way to reach this group. Also, although not as effective as face-to-face, neighbor-to-neighbor learning, written materials can be included in utility and telephone billings. The 4-H extension clubs, farm bureau, and other civic groups (service clubs) are also potential educational resources. Sources of educational assistance and materials outside your community are:

1. Neighboring fire departments;
2. State agencies—State Fire Marshal, State Fire Training, State Division of Forestry;



3. Federal Emergency Management Agency, United States Fire Administration;
4. National Fire Protection Association;
5. Insurance Companies.

With an informed public, your fire protection needs will not be so great, and public acceptance of fire protection costs will be more easily achieved. And, of course, the incidence of unfriendly fires will be reduced.

### **Fire Inspections**

Programs designed to detect and remove fire hazards in and around homes, farms, and other buildings are another way to improve fire protection. A fire inspection checklist can be prepared and distributed throughout the community to encourage fire prevention through self inspection; or programs of fire inspection might be developed which involve civic groups such as the Boy Scouts, Future Farmers, Women's Auxiliary, or senior citizens' clubs.

### **Fire Extinguishers**

Setting up a fire extinguisher program should be considered. In such programs, portable fire extinguishers could be located in places of residence, in structures housing animals, or where people work or gather. To increase fire protection capability, people should be trained in the proper uses of the extinguisher and in the use of small water hose lines. Inspection and maintenance of the extinguishers could be taken over by civic groups at a nominal cost. Purchasing the extinguishers and supplies in quantities could reduce the cost of the program. Irrigation systems with citizen-operated pumps could be designed or modified to provide water supplies for fire suppression in some situations. Instruction in the proper use of the equipment could be a part of the public education program already described.

### **Automatic Detectors**

Automatic smoke and heat detector devices have been in use for many years and have repeatedly proven successful in public and private buildings across the nation. The idea of wide application, particularly in low-population areas, now seems to be economically possible. All that remains for the concept to become a reality is for responsible persons to develop programs based on local need. The standard for installation and maintenance of household fire warning equipment is the National Fire Protection Association Standard Code Number 74 (Reference 5).

Automatic smoke and heat detection devices are most useful in saving lives by alerting occupants so they can get out while the fire is small. Properly designed and installed devices will detect beginning fires and sound an effective local alarm. If occupants are warned at this stage, they will have more time to:

1. Leave the structure and assist others (including animals) to do likewise.
2. Report the fire to the local fire department.



3. Take direct but safe action to extinguish the fire. Note: There is danger in this because even small fires produce toxic gases that can kill.
4. Be available to inform arriving firefighters about any occupants still inside and other conditions important for successful fire control.

The details of a successful areawide automatic fire detection program should be developed on a local basis, but such a program can result in significantly reducing human injury and suffering, the loss of life and property. The early detection of fire and smoke will add precious minutes for escape.

If such a program were to be undertaken as a community effort, it might be possible to buy enough detectors to reduce their unit cost. The same would be true for detector maintenance and/or installation, including: (1) replacement of batteries, (2) exchange of faulty units, or (3) electrical installation wiring.

The advantages of automatic fire detectors increase sharply when they are used by those who are aware of the need for speedy evacuation and have such a plan. For a detector program to be effective, it should include training people how to react safely when a fire alarm sounds.

### **Private Fire Departments**

The involvement of private enterprise in fire protection should not be overlooked. Perhaps the most notable private company that today provides fire protection to the general public is the Rural/Metro Fire Department of Scottsdale, Arizona. This private fire department has been able to work in the political and economic environment of city and rural areas to provide its customers with acceptable fire protection at an affordable cost. In addition to serving Scottsdale, the Rural/Metro Fire Department serves several rural Arizona communities.

### **STATE ASSISTANCE**

Local governments desiring to establish or improve fire protection can often obtain assistance from their state governments. Most states maintain fire service agencies, but service varies from state to state. Typical examples are described below.

### **State Fire Training and Education**

Most states provide for fire training and education. Provisions for such training vary considerably. Some states have academic degree programs within their university systems. Others make use of community colleges, trade schools, and unified school district facilities to teach fire prevention as well as firefighting. Some states provide just basic hands-on firefighting skills training (equipment operation) while other states offer courses for all ranks from rookie through chief.

### **State Fire Marshal**

Nearly every state has a fire marshal or an equivalent officer. The fire marshal's office is often required to investigate suspicious fires that occur anywhere in the state,



generally at the request of local officials. The State Fire Marshal frequently is also concerned with the fire and life safety aspects of the state building codes. Generally, he is also concerned with improving fire protection throughout the state and may, therefore, be of assistance. Seek him out and ask him to help.

### **State Division of Forestry**

All states have forestry divisions to complement the federal forestry function. Generally the state forestry divisions accept firefighting responsibility only for state-owned and specifically defined private lands. Nevertheless, they can be of significant assistance to some local communities on a day-to-day, mutual-aid basis. Also, the State Division of Forestry represents a significant source of equipment and men, available to the Governor, to assist anywhere in time of peril or disaster.

### **State Office of Emergency Services (State Defense Civil Preparedness Agency)**

State Office of Emergency Preparedness Services (previously Civil Defense) officers are a source of assistance and information at all times and especially during times of disaster. Most counties have an emergency preparedness officer.

### **State Planning Districts**

All states have planning know-how, usually in the form of formal planning organizations. These are sometimes called sub-state planning districts, local government affairs offices, and so on. These experts are a good source of planning knowledge and experience, which may be invaluable to developing a fire protection system.

## **DEFINITION OF THE FIRE PROTECTION SYSTEM CONCEPT**

Consider again your goals, objectives, and ways to get things done, and now prepare a written description of your fire protection system. Include the functions you defined in Step 2. This description must be sufficiently detailed to permit establishing costs and responsibilities; thus, it must identify which agencies or groups are responsible for which aspects of the system, and what resources are required by each.

Each "action" element of the fire protection system concept should be carefully and clearly assigned to someone with appropriate authority who agrees to accept the additional responsibilities. No aspect of the system should be left hanging.

## **RECAP**

This step should have resulted in establishing fire protection objectives, defining a protection system concept, and obtaining any approvals of the concept which are needed.



## STEP 7: IDENTIFY AND DEFINE REQUIRED LEGAL STATUTES

In all instances, qualified legal counsel should be consulted to determine what the present laws mean, and what can be done about changing or enacting the laws you need. In some cases, it may be possible to achieve relief through passage of a resolution by your local administrative authority, such as the town board, city council, county government, or commission. In some cases, when your plan calls for the establishment of a new district, increased taxation, or controversial measure, it may be necessary and desirable to go to the trouble of asking for a public referendum or voting initiative.

The need to get laws enacted or changed depends upon existing provisions of local, state, and federal laws as they apply to your particular situation. You may, for example, be establishing a fire protection capability in an area where none has been in existence, or you may wish to significantly improve an existing system. Other situations might include the desire and need to perform some functions in ways which are forbidden by law or on which the law is silent. Examples of these kinds of situations follow.

1. Suppose you had established the following fire protection goal:

To provide a level of fire protection that will significantly reduce the chances of death resulting from fires that occur during sleeping hours.

Further, suppose that this fire protection system goal resulted in an objective and in a program which required the use of tax revenues to purchase, install, and maintain smoke detectors in each dwelling. Could you do this legally?

2. Suppose you have determined that an appropriate function of your fire protection system is to increase your fire protection level of service outside the boundaries of your municipality, but there exist no statutory provisions to allow this to be done without incurring liability.

In each case cited, some change in law might be necessary if the fire protection system is to be legally implemented and its full capacity is to be realized.

A main concern of this planning step is to evaluate the legal aspects of your system concept. It is very possible that you will discover a liability that has existed for years. Consider the problems of jurisdictional boundaries, for example:

- Does a fire protection district, county, or city have a legal right to expend funds from taxes for fire services outside the taxing boundaries?
- Are fire department members who respond outside jurisdictional boundaries (sometimes even outside the state) legally covered for accident insurance, personal liability, pension, and wages or salary?
- Can a fire department legally enter property outside its jurisdictional limits in connection with a fire if the owner has not given his permission?
- Does a community fire department have legal authority to cross city, county, or state boundaries to fight rural fires?
- If a fire department has been responding to rural fires without specific legal authority can it legally withdraw such services?



- Is a fire protection agency (city, district, county, etc.) liable when its fire department responds outside its own jurisdictional limits at the request of another governmental authority?
- Is a fire protection agency (city, district, county, etc.) liable when its fire department responds outside its own jurisdictional limits at the request of a citizen?
- Who is responsible for payment of firefighters sent outside the city?
- What financial liability does a city assume by not responding outside city boundaries when requested by a rural resident and, thus, injury, death, or property loss resulted?
- Can a community, district, county, etc., contract for services from another similarly formed entity?
- How adequate is fire protection within the city when its resources are busy outside the city?
- Can your governing body enact codes which exceed existing codes? For example, has the state preempted the field by establishing minimum/maximum codes, thus, effectively barring the local jurisdiction from the right to modify codes? (See "Explanation of Terms" for definition of minimum/maximum codes.)

In any event, you should make sure everything you want to do is legal, and if it is not, whether or not you still want to do it, and if so, what new laws, statutes, ordinances, or resolutions are required. You may, in fact, find you are blocked by a legal obstacle and must, therefore, review your goals, objectives, and system concept. An example of such blockage might be the existence of state-level, so-called, minimum/maximum building codes. Where these codes are the State Law, the local jurisdictions usually are not allowed to establish local building codes which are at variance with those by the state codes.

## **RECAP**

This planning step should have resulted in a definition of any legal actions necessary to enable the system concept you have chosen.



## STEP 8: DETERMINE COSTS

In this step you consider, and estimate, the cost of the fire protection system concept you have defined and wish to implement. Obtain all of the financial analysis assistance you can get. Go to see (1) bankers or local businesses, (2) tax assessors, and (3) governmental budget preparers (even if you are not seeking governmental funding).

The total system cost is the cost of developing and operating the system over the planned period. This cost includes capital costs (generally of facilities and apparatus) and operating costs (generally of direct and indirect costs of personnel, maintenance, expendables, utilities, etc.). Some areas may be able to support their fire protection system with volunteer services, private funds, equipment, etc. Most, however, will require public funds. A few of the many items requiring funds include:

- Paid or part-paid firefighters and other professionals, and their personal equipment;
- Command, administrative, and maintenance personnel;
- Fire-related facilities, equipment, parts, and supplies;
- Administrative facilities, equipment, and supplies;
- Utilities (including water distributed for firefighting);
- Communications (radio and telephone);
- Educational materials, insurance policies, legal advice, etc.

Each of these costs and others may be estimated for each year of the system implementation period, and are then added to obtain total cost of implementation. You should also note and calculate the expected annual operating cost of the system once implemented.

Keep in mind that public-sector fire protection costs typically include costs of other community agencies such as:

Public and private school-supported fire education;

Public water system expenses necessary to support the fire system;

Road department costs in support of the fire system (weed removal, access roads, etc.);

Building code enforcement.

The private sector costs for fire protection should also be determined and included in your total community fire protection system cost estimate. Private costs include:

Increased building costs that result from changes in the building codes;

Installation and maintenance of smoke and heat detectors;

Maintenance of firebreaks around homes and farms;



Changes in insurance rates (rates may decrease, increase, or remain the same);  
Installation and maintenance of sprinkler systems.

## **RECAP**

This step should result in the preparation of a complete cost estimate writeup, including all resources necessary to establish, operate, and maintain the selected fire protection system.



## **STEP 9: SELECT A FINANCING SCHEME**

Adequate resources and services are vital to the success of any fire protection system. The following methods are among those that have worked:

- Volunteer services;
- Donated equipment and supplies;
- Fund-raising drives;
- Fees;
- Taxation;
- State assistance;
- Federal assistance—revenue sharing, grants, etc.

### **VOLUNTEER SERVICES**

Volunteers have long been a main source of firefighter labor across the nation. One million Americans, give or take a few thousand, serve as volunteer firefighters. This is five times the number of paid firefighters. By one estimate, on the basis of the cost of replacing volunteers with paid firefighters, the Nation's volunteers render a public service worth at least \$4.5 billion annually.

However, volunteer services other than those of the firefighters may be required to operate a fire protection system. For example, a program of fire extinguisher inspection might be carried out by the Future Farmers of America, the Boy Scouts, housewives, or senior citizens. Such groups could also undertake periodic home fire prevention inspections and maintenance programs for smoke detectors. Some of these people might also be interested in participating in programs of public fire education. Many of the older folks would find it stimulating to teach youngsters about fire prevention.

### **DONATED EQUIPMENT AND SUPPLIES**

Small equipment and consumable supplies are always needed to support the operations of a fire protection system. Local citizens have been known to furnish these for the good of the area's fire protection.

### **FUND-RAISING AND EQUIPMENT-RAISING DRIVES**

A traditional method of obtaining fire protection funds for volunteer fire departments is the fund-raising drive. These drives are popular social events. Bar-B-Q dinners, picnics, dances, pie suppers, lotteries (raffles), and turkey shoots are enjoyable and often represent a more acceptable means of raising funds than direct solicitation. For a door-to-door fund drive to be successful, the department must be on excellent terms with the whole community. Special drives can also be held to raise funds for fire engines or other equipment.

### **FEES**

Service fees are a common method of providing for the costs of fire protection. Fees are generally used to supplement a fire organization's other resources, whether these resources are voluntarily contributed or mandated by taxation. Here are some fee arrangements that have worked:



1. Per-Run Charge—If this method of collecting fees is imposed, only the persons actually using the service are charged (that is, when they have a fire). Consequently, the charges are usually quite high to the individual. To determine the run charge, you first total all costs for providing the service over a previous period, say, for a year. Then, divide these total costs by runs, miles, or time, and perhaps by occupancy category to get some basis for fixing response charges. You can select whatever "average" cost (per run, per mile, per hour, etc.) seems best for your situation. The costs you use should reflect both capital and operating costs, and a sinking fund to pay future expenses including the need for building and equipment replacement. For example, if 26 runs result in fire protection costs of \$6,686.00, then the average is \$257.00 per run. Recalculate this figure from time to time to provide for changes in costs.

One variation to this charge arrangement that is worth considering is to base the per-run charge on the quantity of fire equipment required to handle a call. This estimate is based on risk severity.

An advantage to the run charge system is that insurance policy riders are available at nominal cost to pay all or part of the charge. A disadvantage is the difficulty in collecting.

2. Subscription Fee—If fees are set on a subscription basis, the subscribers pay a small fee each year, whether or not they actually utilize fire protection services. This is a form of self-insurance. As described in the per-run method, it is necessary to establish the subscriber cost on the basis of past experience or on an estimate of future expenses. The number of persons paying will be greater (than on a per-run basis), but the income will remain the same. Therefore, by using the previous figure of \$6,686.00 but considering 500 subscribers, the cost per subscriber would amount to \$13.37 per year. Using the above fire costs (\$6,686), and assuming that 500 subscribers have a combined risk factor of 1,500 (an average of three pieces of apparatus required for each risk, or structure), the resulting subscription cost per risk factor would be \$4.45. This amount would be multiplied by the actual risk factor of each subscriber to determine his fee. For example, subscribers having a risk factor of 1 (piece of apparatus) would pay for a subscription fee of \$4.45 ( $1 \times \$4.45$ ) but a subscriber having a risk factor of 7 (pieces of apparatus) would pay \$31.15 ( $7 \times \$4.45$ ).

A disadvantage of subscription fees is that the subscribers tend to discontinue their payments with passage of time.

## TAXATION

Taxation is a common form of fire protection financing. In most incorporated areas (cities, towns) and counties (or equivalent), governments are authorized by law to levy and collect taxes necessary to maintain public services. By and large, municipalities now realize and accept their responsibilities for fire protection financing.

Nowadays there is increasing pressure on county governments to develop or exercise similar means of keeping pace or catching up with the growing need for fire protection in county rural areas. This situation has developed in most instances because of the refusal or inability of municipal fire departments to respond to county alarms. Fire protection is particularly troublesome where county populations are increasing and tend to concentrate near municipalities or in unincorporated settlements.



Government responses to problems of growth are mixed, and actions vary according to local conditions. Many counties have established special fire protection taxing districts. There are also counties that choose to finance and operate their own fire protection systems. For municipalities, the method of financing is usually by property taxes. Tax rates in some counties are uniform throughout the county; in others the tax rate is graduated by area to account for greater or lesser levels of fire protection required. When a county establishes a fire protection system, it usually excludes municipal areas and, sometimes, existing special fire protection districts. Conversely, all fire protection services of the county might be combined and operated by the county, either directly or under contract.

## STATE ASSISTANCE

States regulate some activities of their private insurance companies. State insurance commissioners (or other named office) set or approve maximum premium rates, features of coverage, and claim payments, as a function of state regulatory powers.

In Mississippi, for example, the State Insurance Department is involved in a state "insurance rebate program for fire protection in cities and rural areas" (sections 8-1-37 and 8-1-39, Mississippi Code of 1972). Provisions of these sections authorize and direct the State Fire Insurance Commissioner to pay over to fire protection funds a fraction of the insurance taxes levied on gross premiums of certain insurance policies written on properties in the state.

## FEDERAL ASSISTANCE

The federal government is extensively involved in programs that bear directly or indirectly on fire protection. An example of this involvement is the federal surplus property program. This program has provided to many communities surplus federal government equipment suitable for conversion to firefighting equipment.

The Federal Emergency Management Agency, United States Fire Administration maintains and distributes a summary of federal programs affecting the fire services entitled Sources of Federal Funds for the Fire Services. Order the current printing of this document from:

Federal Emergency Management Agency  
Office of Procurement  
Washington, DC 20472

## RECAP

The result of this planning step should include the selection of the method(s) by which the fire protection system will be financed and a writeup of the results.



## **STEP 10: DOCUMENT THE FIRE DEFENSE AND EMERGENCY RESPONSE PLAN**

The Fire Defense and Emergency Response Plan contains the description of, rationale for, and the scheduling and budgeting of "programs." The system is the result of programs, and its level of service varies with time.

Documenting your Fire Defense and Emergency Response Plan is the final step in the planning process. All that remains is its approval and then you can begin implementation.

Documenting the Plan is, of course, essential if people are to follow up its requirements over the next several months or years. Further, if it is to be approved, it must be in written form.

In order to best arrange the Plan, you should review again how you will implement it. Organize it so that the people who will be responsible for implementation can easily find all of their responsibilities. The Plan should make it easy for people to translate its requirements into departmental procedures or budgets, to order equipment, or to draft ordinances.

Be sure to reference all backup information which helped you arrive at your concept and other Plan provisions.

Keep in mind also that you will want to review, and perhaps modify the Plan at least once a year.

Now with these thoughts in mind you might want to follow the Plan outline which follows:

### **FIRE DEFENSE AND EMERGENCY RESPONSE PLAN OUTLINE**

Foreword and/or Signature Page

Introduction or Summary

Present Fire Protection System: Problems and Resources

Analysis of Losses (Step 2), Risks (Step 2), Costs (Step 2)

Citizen Survey Results (Step 2)

Fire System Functional Survey Results (Step 2)

Fire Service Capabilities and Responsibilities (Step 2)

Personnel, Equipment, Budget, Legal Issues (Step 7), Boundaries

Fire Protection Goals and Objectives (Steps 5 and 6) (Objectives for planning periods—0-1 year, 1-5 years, or other periods.)



Action Programs (Step 6)

Implementation Schedule

Expected Results

Authority Responsible

Resources Required (Step 8); Costs and Budgets, Man-hours, Legislation (Step 7),  
Changes in Policies and Procedures

**Appendices**

Include details of evidence to support conclusions and recommendations. Also identify location of data used to reach planning decisions but not included in the plan (e.g., the minutes of the planning committee).

**NOTE:** Acknowledgements of contributions of planning team committee and approving authorities is both polite and politic.

**RECAP**

The result of this step should be the preparation of an approved Fire Defense and Emergency Response Plan document (writeup).



## PART 3: IMPLEMENTING THE PLAN

Part 3 offers some thoughts on how to activate and maintain your Fire/Emergency Response Plan. It includes methods of evaluating system performance as compared with the Plan and methods of maintaining the Plan to reflect current fire protection conditions.

### STEP 11: PUTTING THE PLAN IN ACTION

#### TASK IMPLEMENTATION

The actual implementation of tasks to start and keep up the fire protection system defined in the Fire Defense and Emergency Response Plan will be carried out by those responsible for the various functions of the Plan. Someone must watch the process to make sure everything happens as it should or to make adjustments when it doesn't.

#### EVALUATE PLANNED PROGRESS

You will need to establish a way to monitor the progress toward achieving the planned operation of system functions. A convenient way to do this is to periodically meet with all responsible persons, as a group or individually, to discuss successes, failures, problems, and alternative course of action. Look at your objectives and action programs—did you reach your objectives? If not, what were the problems? Were the action programs adequate? Did you misjudge the required time? To maintain the support of local citizens, periodically inform them of Plan progress by the use of public meetings, radio, television, and newspaper, as appropriate.

#### PLAN MAINTENANCE

As time passes, the fire protection needs of the area will change; new fire hazards will appear or old ones will be removed; technological advancements will make older techniques obsolete, and newer techniques may place demands on the system which can cause reassignment of functions, etc.

To keep the fire protection system, and the Fire Defense and Emergency Response Plan for it up to date, you should review all previous planning decisions every year. Do not let the fire protection system become obsolete!

If you've gotten through this step, you've done your community a real service.

#### RECAP

The result of this step should be to take actions necessary to put your Fire Defense and Emergency Response Plan into action.



## EXPLANATION OF TERMS

**FIRE PROTECTION SYSTEM**—An organized arrangement of people and things performing defined functions to prevent or control unwanted fires.

The terms in the Guide are mostly in accordance with general usage and dictionary definitions (Reference 3). Where special definitions are required, National Fire Protection Association terminology (Reference 1) is used:

**ACCEPTABLE FIRE RISK**—The potential fire loss that a community is willing to accept rather than provide resources to reduce such a loss.

**ALTERNATIVE**—One of two or more things, offering a choice.

**ALTERNATIVE FIRE PROTECTION SYSTEM CONCEPT**—One of two or more ideas for a fire protection system.

**APPARATUS**—A motor-driven fire truck or a collective group of such trucks, which may be of different types such as pumper trucks, ladder trucks, etc. Generally equivalent to the British usage of "appliance." Usually does not include auxiliary vehicles not equipped for firefighting.

**AUTOMATIC AID**—A form of mutual aid involving a pre-arrangement between two or more departments that routinely provide emergency response assignments to each other.

**CHARACTERISTIC**—An attribute, descriptive feature, or identity.

**COMMUNITY**—A commonly located, interacting population of people and business.

**COST-BENEFIT**—A term used to express the value of a benefit-producing system. Can be expressed as a ratio of cost (negative value) to benefit (positive value) both in equivalent terms such as dollars, man-hours, etc.

**CURRENT SYSTEM**—The fire protection procedures and system in use at present.

**DATA**—Raw facts or observations; factual material used as a basis especially for discussion or decision: information.

**EVALUATION**—Measuring the success of a program or concept.

**FIRE PREVENTION**—That part of fire protection activities exercised to prevent ignition of unwanted fires and to minimize loss when fire does occur.

**FIRE PROTECTION**—The science of reducing losses of life and property due to fire, including both prevention and extinguishment by public and private means. Also, the degree to which such protection is applied.

**FIRE PROTECTION DISTRICT**—A rural or suburban fire district, usually tax supported, which purchases fire protection from a nearby fire department or which may own and operate fire apparatus.

**FIRE DEFENSE AND EMERGENCY RESPONSE PLAN**—A principal plan for fire protection and other included services. The documented Plan of action which results from a fire/emergency planning program.



**FIRE PROTECTION PLANNING**—The process of deciding what to do to reduce human suffering and loss of life and property due to fire.

**FIRE SITUATION**—The state or condition of the community with regard to fire protection. Includes fire-related (what there is to burn) and fire system (management) situations.

**FUNCTION (or FUNCTIONAL CHARACTERISTIC)**—Something a fire protection system does, an activity.

**GOAL**—The general end toward which an effort is directed. In the context of fire defense and emergency response planning, goals represent, in general terms, what the fire protection system is intended to accomplish eventually.

**GRADING SCHEDULE**—Standard Schedule for Grading Cities and Towns of the United States with Reference to Their Fire Defenses and Physical Conditions, a document copyrighted by the Insurance Services Office (ISO) and used by underwriters' engineers to measure the physical fire defenses of communities.

**LEVEL OF SERVICE**—The amount of the fire control and fire prevention (fire protection) supply for a public demand. In terms of fire protection, the level of service may be expressed in many ways; that is, percent of people protected, percent of buildings protected, area protected, dollar value of property protected, firefighters per capita, water flow capability, etc.

**MAXIMUM**—The greatest quantity or value.

**MEASURABLE TERMS**—A description of something that can be measured.

**LIMITED SYSTEM**—An organization where information is tightly controlled, outsiders have little say so, and change is hard to bring about.

**MINI-MAX BUILDING CODE**—Normally a state mandatory regulation which is a minimum and maximum building code in one; uniformity in building code requirements and lack of authority to local jurisdictions to amend the code are significant of this concept.

**MINIMUM**—The least quantity or value.

**MUTUAL AID**—Two-way assistance by fire departments of two or more communities freely given under pre-arranged plans or contracts on the basis that each will aid the other.

**OBJECTIVE**—Something specific toward which effort is directed. In fire protection planning, objectives are specific accomplishments necessary in order to achieve goals, the results of which can be measured.

**OPEN SYSTEM**—An organization where information is freely available, outsiders are heard, and warranted change is possible.

**OPTIMUM**—Most desirable thing, or status, greatest degree, etc., under implied or specific conditions. Not necessarily either maximum or minimum.

**PRIVATE SECTOR**—That portion of a community which is not a part of the governing or public service body; generally used as a synonym for citizen groups and private industry.



**PROJECTED**—Looking toward the future; forecast on the basis of present information.

**PUBLIC SECTOR**—That portion of a community which belongs to the public at large; generally used as a synonym for governmental agencies.

**RESPONSE**—The act of responding to an alarm. In addition, the entire complement of firefighters and apparatus to an alarm as "The entire first alarm response was put to work."

**RESPONSE TIME**—The length of time required by a complement of firefighters and equipment to respond to a reported fire or other emergency. Response time usually is measured from the time the emergency alarm is received by the fire units to the time of arrival at the fire or in an area of the fire.

**PLANNING ENVIRONMENT**—The people, government, economic, cultural features (buildings, roads, etc.), and geographical setting in which planning is to be done.

**RISK**—Possibility of loss, as in "acceptable fire risk."

**RISK ELEMENT**—Anything which produces or poses an uncertainty; for example, technological risk may arise owing to use of obsolete technology or by use of unproven technology, or fire risk may result from the storage of flammable liquids in an otherwise fire-safe structure.

**RURAL**—Of or pertaining to the country, country people, or life outside of cities, or agriculture.

**RURAL FIRE PROTECTION**—Difficult to define but basically fire protection and firefighting problems outside of areas under municipal fire protection and building regulations and usually remote from public water supplies. It should be noted, however, that in numerous instances municipal fire protection limits have been officially extended to include large areas which are sparsely settled. Also, water supplies and other municipal services and utilities may cover extensive areas outside of municipal corporation boundaries. Also, an increasing number of counties are now providing services including public fire prevention or protection.

**SINKING FUND**—A fund set up and accumulated by usually regular deposits for paying off the principal of a debt when it falls due, or to replace something that will wear out.

**SYSTEM**—An arrangement of parts or elements (people, things, and/or organizations) working together to perform a set of operations in the accomplishment of the purpose of the whole ("telephone system," "heating system," "park system").

**SYSTEM CONCEPT**—An idea for a system.

**UNFRIENDLY FIRE**—Any fire that is a threat and particularly an extension of a useful fire, intended for heat or for industrial or other useful processes, which spreads to combustible materials of value which were not intended as fuel.

**WILDLAND**—Lands on which the fuel consists of natural cover such as trees, brush, weeds, or grasses rather than cultivated crops such as on grainfields.

**WILDLAND FIRE**—Any forest, grass, brush, or tundra fire involving lands not under cultivation but including forests regardless of the type of timber.



## **ABBREVIATIONS**

AARP—American Association of Retired Persons

EMS—Emergency Medical Service

EMT—Emergency Medical Technician

FEMA—Federal Emergency Management Agency

FP—Fire Protection

FPD—Fire Protection District

ISO—Insurance Services Office

LNG—Liquid Natural Gas

NFPA—National Fire Protection Association

NFPCA—National Fire Prevention and Control Administration

NRTA—National Retired Teachers Association

RFPD—Rural Fire Protection District

TVA—Tennessee Valley Authority

USFA—United States Fire Administration



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## APPENDIX A

### FIRE FUNCTION SURVEY FORM

#### PURPOSE OF A FIRE FUNCTION SURVEY FORM

This survey form is designed to aid in identifying the agencies and functions which are concerned with fire protection and Fire Defense and Emergency Response planning or which have an impact in this area. The results of this survey should identify:

1. Which fire protection functions are being performed,
2. Which public or private agency is responsible for performing each function,
3. Which functions are not being performed but should be,
4. Which functions being performed have problems that need to be solved during the planning process,
5. Which functions are appropriate and are being adequately performed.

#### HOW TO COMPLETE THE SURVEY FORM

1. Carefully review the survey form, paying particular attention to its organization. Also, note that codes are shown for several local agencies which might have responsibility for one or more of the listed fire protection functions.
2. Identify the responsible agency for each listed fire protection function and write the agency code in the appropriate column at a position horizontally across from the function. (See agency codes below.)

If you add a function to the list, identify its responsible agency opposite the letters you choose for a code.

If a function is listed which is not carried on in the planning area and you see no need for the function, leave the responsible agency blank. If, on the other hand, the function is not carried on but you feel it should be, write the corresponding agency code and circle it.

3. Indicate that the fire system function is "appropriate" by checking the proper column, if you see it as an accurate statement of fire protection responsibility, or if the function does not exist but is needed as a part of the fire system.
4. Indicate that it is "inappropriate" by placing a mark in the proper column, if you feel the fire protection function should not be part of the fire protection system or if the function is improperly stated. Please expand your reasons for "inappropriate" functions on an attached sheet.
5. Indicate that there is a "problem" by checking the proper column if you feel it is a correct statement. Please explain any problems on an attached sheet, and include any solution you might have.



6. Indicate that the fire protection function is operating properly by checking the proper column (if in your opinion it is).
7. Add any functions, problems, etc., which you feel should be considered. Use the codes, I, J, etc., to identify additional items.

**Agency Codes:**

A = Building Department  
B = Emergency Medical Department  
C = Fire Department  
D = Law Enforcement  
E = Parks Department  
F = Planning Department  
G = Street or Road Department  
H = Water Department  
I =  
J =  
K =  
L =



**FIRE FUNCTION SURVEY FORM**

Ref. No.	Functions	Other
1	Are construction plans checks required?	
2	Are on-site construction inspections carried on?	
3	Are occupancy permits required?	
4	Is a dangerous building abatement (condemnation) program carried out?	
5	Are code modifications made for maximum fire/life safety?	
6	Are code deficiencies referred to the appropriate department?	
7	Is assignment of street numbers coordinated with fire department needs?	
8	Are occupancy codes maintained?	
9	Is coordination between local departments and governmental agencies on various aspects of construction carried on?	
10	Are streets designed for fire department access, including width, turning radius, and vehicle weight?	
11	Are maps of water, sewer, storm drains, street addresses, and city boundaries maintained up to date?	
12	Are bridges designed and constructed capable of handling fire equipment?	
13	Are water systems capable of providing adequate fire flow?	
14	Are new water systems or improvements to water systems designed to provide adequate fire flow?	
15	Are water systems inspected during construction to assure maximum reliability and availability of fire flow?	
16	Are fire hydrants routinely flushed?	
17	Are fire flow tests conducted?	
18	Are street valve position checks conducted?	
19	Are records on hydrant and valve maintenance, flushing, and flow maintained?	



**FIRE FUNCTION SURVEY FORM (CONTINUED)**

Ref. No.	Functions	Other
20	Are final inspection and approval of new occupancies coordinated with the fire department?	Function Is Not Properly Performed
21	Are all "fire protection pit valve" installations inspected?	Function Is Properly Performed
22	Is the fire department informed of all hydrants "out of service" and new or repaired hydrants "in service?"	Function Is Properly Performed
23	Are water department personnel notified of large fire and increase water flow?	Function Is Properly Performed
24	Does the city coordinate its water activities with rural water districts?	Function Is Properly Performed
25	Are the fire protection needs in new developments coordinated between zoning department, water department, building department, and fire department, etc.?	Function Is Properly Performed
26	Does the police department assist at emergencies by providing crowd and traffic control?	Function Is Properly Performed
27	Are fire hazards discovered by police patrols reported to the fire department?	Function Is Properly Performed
28	Is adequate fire alarm receipt and dispatching capability maintained during emergencies?	Function Is Properly Performed
29	Does the police department enforce no-parking ordinances in fire zones (obstructions to fire hydrants, fire department standpipes and sprinkler connections access routes—Public Property)?	Function Is Properly Performed
30	Does the police department assist the fire department with fire investigations?	Function Is Properly Performed
31	Is the fire department provided training on the legal aspects of arson investigation?	Function Is Properly Performed
32	Are police patrol personnel trained in fire rescue procedures?	Function Is Properly Performed
33	Police patrol personnel receive training on fire rescue procedures.	Function Is Properly Performed
34	Emergency vehicles are kept on a preventative maintenance program.	Function Is Properly Performed
35	Mechanic is available for emergency repairs of fire and rescue equipment.	Function Is Properly Performed



**FIRE FUNCTION SURVEY FORM (CONTINUED)**

Ref. No.	Functions	Other
36	Provisions have been made for refueling and repairs at emergency scene.	Function Is Not Properly Prepared
37	Emergency power generators are maintained.	Function Is Not Properly Prepared
38	All apparatus and vehicles purchased meet specifications.	Function Is Not Properly Prepared
39	Dealers provide training to personnel on proper operation of new apparatus and equipment.	Function Is Not Properly Prepared
40	Provisions available for the purchase of or the printing of fire safety material.	Function Is Not Properly Prepared
41	Fire equipment response times are adequate.	Function Is Not Properly Prepared
42	Pumping capacity is adequate.	Function Is Not Properly Prepared
43	Fire apparatus manning is adequate.	Function Is Not Properly Prepared
44	Personnel safety programs are adequate.	Function Is Not Properly Prepared
45	Mutual aid agreements or contracts are adequate.	Function Is Not Properly Prepared
46	Fire codes are adequate.	Function Is Not Properly Prepared
47	Fire code enforcement is adequate.	Function Is Not Properly Prepared
48	Fire Prevention Bureau is adequate.	Function Is Not Properly Prepared
49	Suppression division is adequate.	Function Is Not Properly Prepared
50	Training division is adequate.	Function Is Not Properly Prepared
51	Measurement of effectiveness is adequate.	Function Is Not Properly Prepared
52	Public education is adequate.	Function Is Not Properly Prepared
53	Fire records are adequate.	Function Is Not Properly Prepared
54	Fire investigations are adequate.	Function Is Not Properly Prepared
55	Coordination between city, county, and state fire agencies is adequate.	Function Is Not Properly Prepared
56	Street/road department notifies fire department of street closures.	Function Is Not Properly Prepared
57	Street/road department provides heavy equipment for special fire ground needs.	Function Is Not Properly Prepared



**FIRE FUNCTION SURVEY FORM (CONTINUED)**

Ref. No.	Functions	
58	Fire hydrants and fire zones are properly identified with paint markings.	Responsibility Agency
59	Basic training of new personnel is provided.	Properly Placed
60	Probationary training is provided.	Function Is Not Applicable
61	6-month and 12-month probationary exams are administered.	Function Is Properly Operates
62	Relief engineer training is provided.	Properly Function Is Needed
63	Special aerial and snorkel training are provided.	Function Is Properly Operated
64	Library of training aids is maintained.	Properly Function Is Needed
65	Pre fire planning program is provided.	Properly Placed
66	Special Hazards Training Courses are provided.	Function Is Not Applicable
67	First aid emergency medical technical training is provided.	Properly Operates
68	Management training provided for officers.	Function Is Properly Operated
69	Fire Brigade training is provided.	Properly Function Is Needed
70	Fire drills are conducted in rest homes	Properly Function Is Needed
71	Major Disaster drills are conducted.	Properly Function Is Needed
72	Daily and weekly radio tests are made.	Properly Function Is Needed
73	Fire alarm system tests (public and private) are carried on.	Properly Function Is Needed
74	Civil defense warning systems are periodically operated and tested.	Properly Function Is Needed
75	911 emergency telephone system installed and operating property.	Properly Function Is Needed
76	Fire department use of cable TV in training program.	Properly Function Is Needed
77	Records kept on:	Other
	Direct loss	Problem With Function
	Indirect fire loss	Function
	Cost of public fire protection	
	Cost of private fire protection	



**FIRE FUNCTION SURVEY FORM (CONTINUED)**

FIRE FUNCTION SURVEY FORM (CONTINUED)	
Ref. No.	Functions
78	Disaster planning is carried on for: Tornadoes Floods Earthquakes Civil disorders Hazardous chemicals Radioactive materials Power failure Water shortage
79	Inspection schedule is maintained for: Hospitals Nursing homes Child day care centers Public places of assembly School houses
80	Mutual aid contracts are adequate.
81	Private contracted fire protection.
82	ISO grading: Is grading the best class possible for conditions? Are you aware of the most important deficiency areas? When is the next anticipated inspection?
83	Is the State Fire Marshal's Office involved with the local fire problems?
84	Are state laws and codes adequate for local needs?
85	Labor laws adequately taken into account?
86	Fire department public relations activities carried on: Bicycle licensing Voter registration Boy Scout merit badge program Fire station tours
87	Are fire protection system programs evaluated for effectiveness?
88	Is a long-range staffing plan maintained?
89	Long-range capital improvement plan is maintained.
90	Scheduled replacement of apparatus and vehicles is carried on.



## APPENDIX B

### CITIZEN SURVEY FORM

#### PURPOSE OF THE SURVEY FORM

This form may be used as a vehicle for obtaining citizen attitude information toward their fire protection.

#### CONDUCTING THE SURVEY

Either of two methods may be used to conduct the survey. A straw poll may be used, or the survey may be based on a statistical experiment, designed specifically for community conditions. Straw polls require only that the questions be asked of as many people as is convenient, and then assuming the results are representative of the entire community attitudes. To conduct a statistically based survey, seek out a statistical theoretician's help and have him design a program specifically for your area. Otherwise you'd just be guessing.

Sources of help include the mathematical departments of colleges, universities, and public schools, as well as manufacturing plants, public utility companies, and telephone companies. In short, any organization requiring the skills of a statistician is a potential source of help.

The survey results will provide insight into the distribution of fire protection information in the community. It will allow you to set goals, objectives, and action programs responsive to the needs and concerns of the local citizens.

An excellent though highly technical book on statistical experimentation may be found in the References (Reference 8).



## CITIZEN FIRE PROTECTION ATTITUDE SURVEY

Interviewer \_\_\_\_\_

Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Age \_\_\_\_\_

Sex \_\_\_\_\_

Resident \_\_\_\_\_

Own Home \_\_\_\_\_ Rent \_\_\_\_\_ Other \_\_\_\_\_

1. What is the name of the fire department that provides your fire protection?

---

1. Don't know

2. (A) Is the fire protection adequate?

1. Yes

2. No

(Answer B below)

3. Don't know

(B) If the protection is inadequate, what could be done to improve it?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. Don't know



3. How is your fire protection paid for?

1. City Tax
2. County Tax
3. Special District Tax
4. Donations
5. Other \_\_\_\_\_
6. Don't know

4. (A) Is the fire department adequately financed?

1. Yes
2. No  (Answer B below)
3. Don't know

(B) If no, should the financing be

1. Increased  (Answer C below)
2. Decreased

(C) If financing should be increased, would the local citizens approve of an increase?

1. Yes
2. No
3. Don't know

5. Which of the following services are provided by the fire department, and which have you used?

Service	Provided	Used
1. Firefighting	<input type="checkbox"/>	<input type="checkbox"/>
2. Emergency Rescue	<input type="checkbox"/>	<input type="checkbox"/>
3. Emergency Medical	<input type="checkbox"/>	<input type="checkbox"/>
4. Fire Safety Inspections	<input type="checkbox"/>	<input type="checkbox"/>
5. Public Service Speeches or Demonstrations	<input type="checkbox"/>	<input type="checkbox"/>
6. Other _____		



6. (A) Do you have any complaints about any service provided by the fire department?

1. Yes

(Answer B below)

2. No

3. Don't know

(B) If yes, what was wrong? \_\_\_\_\_

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7. (A) Does your fire department have the strong support of its community?

1. Yes

2. No

(Answer B below)

3. Don't know

(B) If no, what is the main reason for the lack of support? \_\_\_\_\_

---

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8. What are the three most important fire problems in your community?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

9. (A) How long do you think it would require your local fire department to reach your home in case of fire (from the time of your call to the time of arrival of the fire truck at the home)?

1. 1-5 minutes

2. 5-10 minutes

3. 10-15 minutes

4. Greater than 15 minutes

5. Don't know

(B) Do you think the fire department could arrive quickly enough to

1. Save a life

2. Save the house

3. Control the spread of fire



**APPENDIX C**  
**RESOURCE DEVELOPMENT AGENCIES**

Air Line Pilots Association  
1625 Massachusetts Avenue, N.W.  
Washington, D.C. 20036

Alliance of American Insurers  
20 N. Wacker Drive  
Chicago, Illinois 60606

American Association of Community  
and Junior Colleges  
National Center for Higher Education  
One Dupont Circle, N.W., Suite 410  
Washington, D.C. 20036

American Chemical Society  
Local Sections Operations  
1155 Sixteenth Street, N.W.  
Washington, D.C. 20036

American Hospital Association  
840 North Lake Shore Drive  
Chicago, Illinois 60611

American Institute of Architects  
1735 New York Avenue, N.W.  
Washington, D.C. 20006

American Institute of Electrical  
and Electronic Engineers  
345 E. 47th Street  
New York, New York 10017

American Insurance Association  
85 John Street  
New York, New York 10038

American Medical Association  
535 North Dearborn Street  
Chicago, Illinois 60610

American National Red Cross  
17th & D Streets, N.W.  
Washington, D.C. 20006  
(contact local chapter)

American National Standards Institute  
1430 Broadway  
New York, New York 10018

American Petroleum Institute  
2101 L Street, N.W.  
Washington, D.C. 20037

American Society for Industrial Security  
2000 K Street, N.W., Suite 651  
Washington, D.C. 20006

American Society for Testing and  
Materials  
1916 Race Street  
Philadelphia, Pennsylvania 19103

American Society of Heating, Refriger-  
ating, and Air Conditioning Engineers  
1791 Tullie Circle, N.E.  
Atlanta, Georgia 30329

American Society of Mechanical  
Engineers  
345 East 47th Street  
New York, New York 10017

American Society of Safety Engineers  
850 Busse Highway  
Park Ridge, Illinois 60068

American Water Works Association  
6666 W. Quincy Avenue  
Denver, Colorado 80235

Association of American Railroads  
American Railroads Building  
1920 L Street, N.W.  
Washington, D.C. 20036

Building Officials and Code  
Administrators International, Inc.  
17926 South Halsted  
Homewood, Illinois 60430

Bureau of Explosives  
1920 L Street, N.W.  
Washington, D.C. 20036

Bureau of Mines  
U.S. Department of the Interior  
4900 La Salle Road  
Avondale, Maryland 20782



Center for Fire Research  
National Bureau of Standards  
Washington, D.C. 20234

Chamber of Commerce of the  
United States  
1615 H Street, N.W.  
Washington, D.C. 20062

Chemical Manufacturing Association  
2501 M Street, N.W.  
Washington, D.C. 20037

Combustion Institute  
986 Union Trust Building  
Pittsburgh, Pennsylvania 15219

Community Planning and Development  
U.S. Department of Housing and  
Urban Development  
451 Seventh Street, S.W.  
Washington, D.C. 20410

Compressed Gas Association  
1235 Jefferson Davis Highway  
Arlington, Virginia 22202

Consumer Product Safety Commission  
1111 Eighteenth Street, N.W.  
Washington, D.C. 20207

Economic Development Administration  
U.S. Department of Commerce  
Washington, D.C. 20230

Encyclopedia Britannica  
Educational Corporation  
425 North Michigan Avenue  
Chicago, Illinois 60611

Farmers Home Administration  
U.S. Department of Agriculture  
Washington, D.C. 20250

Federal Aviation Administration  
U.S. Department of Transportation  
800 Independence Avenue, S.W.  
Washington, D.C. 20594

Federal Emergency Management Agency  
United States Fire Administration  
Washington, D.C. 20472

Fire Marshals Association of  
North America  
600 Maryland Avenue, S.W., Suite 220  
Washington, D.C. 20024

Forest Service, Division of Fire Control  
U.S. Department of Agriculture  
P.O. Box 2417  
Washington, D.C. 20013

Hydraulics Institute  
14600 Detroit Avenue  
Suite 712  
Cleveland, Ohio 41107

Insurance Services Office  
Municipal Survey Service  
160 Water Street  
New York, New York 10038

International Association of Arson  
Investigators  
25 Newton Street  
P.O. Box 600  
Marlboro, Massachusetts 01752

International Association of Fire Chiefs  
1329 Eighteenth Street, N.W.  
Washington, D.C. 20036

International Association of  
Fire Fighters  
1750 New York Avenue, N.W.  
Washington, D.C. 20006

International City Management  
Association  
1140 Connecticut Avenue, N.W.  
Washington, D.C. 20036

International Conference of  
Building Officials  
5360 S. Workman Mill Road  
Whittier, California 90601

International Film Bureau, Inc.  
332 South Michigan Avenue  
Chicago, Illinois 60604

International Fire Service  
Training Association  
Fire Protection Publications  
Oklahoma State University  
Stillwater, Oklahoma 74078



- International Municipal Signal  
Association  
3121 Forest Avenue  
P.O. Box 8249  
Fort Worth, Texas 76112
- International Society of Fire  
Service Instructors  
Box 88  
Hopkinton, Massachusetts 01748
- Library of Congress  
National Referral Center of  
Science and Technology  
Thomas Jefferson Building  
Room 5223  
Washington, D.C. 20540
- Liquid Petroleum-Gas Administration  
P.O. Box 53331  
Oklahoma City, Oklahoma 73152
- Materials Transportation Bureau  
U.S. Department of Transportation  
NASSIF Building  
400 Second Street, S.W.  
Washington, D.C. 20590
- Medic Alert Foundation  
P.O. Box 1009  
Turlock, California 95381
- Midwest Research Institute  
425 Volker Boulevard  
Kansas City, Missouri 64110
- National Academy of Sciences  
2101 Constitution Avenue, N.W.  
Washington, D.C. 20418
- National Aeronautics and Space  
Administration  
Lewis Research Center  
21000 Brookpark Road  
Cleveland, Ohio 44135
- National Association of Counties  
1735 New York Avenue, N.W.  
Washington, D.C. 20006
- National Audiovisual Center  
875C Edgeworth Drive  
Capitol Heights, Maryland 20027
- National Bureau of Standards  
U.S. Department of Commerce  
Washington, D.C. 20234
- National Cargo Bureau, Inc.  
One World Trade Center  
Suite 2757  
New York, New York 10048
- National Education Association  
1201 Sixteenth Street, N.W.  
Washington, D.C. 20036
- National Fire Protection Agency  
Batterymarch Park  
Quincy, Massachusetts 02269
- National Highway Traffic Safety  
Administration  
U.S. Department of Transportation  
400 Seventh Street, S.W.  
Washington, D.C. 20590
- National League of Cities  
1620 Eye Street, N.W.  
Washington, D.C. 20006
- National LP-Gas Association  
1301 W. 22nd Street  
Oak Brook, Illinois 60521
- National Research Council  
National Academy of Science  
2101 Constitution Avenue, N.W.  
Washington, D.C. 20418
- National Rural Center  
1828 L Street, N.W., Suite 1000  
Washington, D.C. 20036
- National Safety Council  
444 N. Michigan Avenue  
Chicago, Illinois 60611
- National Science foundation  
1800 G Street, N.W.  
Washington, D.C. 20226
- National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Road  
Springfield, Virginia 22161



Occupational Safety & Health  
Administration  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, D.C. 20210

Public Health Service  
U.S. Department of Health, Education  
and Welfare  
5600 Fishers Lane  
Rockville, Maryland 20852

Railway Systems & Management  
Association  
P.O. Box AA  
Northfield, New Jersey 08225

Small Towns Institute  
P.O. Box 517  
Ellensburg, Washington 98926

Superintendent of Documents  
U.S. Government Printing Office  
Washington, D.C. 20402

Tennessee Valley Authority  
400 Commerce Avenue  
Knoxville, Tennessee 37902

U.S. Naval Research Laboratory  
Department of the Navy  
4555 Overlook Avenue, S.W.  
Washington, D.C. 20390

U.S. Testing Company, Inc.  
1415 Park Avenue  
Hoboken, New Jersey 07030

Western Fire Chiefs Association  
P.O. Box 842  
San Leandro, California 94577



## APPENDIX D

### ABOUT HOLDING MEETINGS

How many times have you been present in a meeting where:

The issues were never clearly defined or no one tried very hard to sell an idea?

Solutions to problems seemed to miss the point or were not strongly supported by anyone?

Action responsibility was never assigned?

The meeting lacked leadership, ran on and on, leaving out important items and discussing much that was not an issue?

These things happen often, but there are ways to increase the effectiveness of your meetings.

First, discuss only those issues that have been defined, agreed upon, and scheduled ahead of time (an agenda). In preparing the agenda, consider the answers to the following questions:

- What is the issue?
- What are the underlying facts?
- Is a resolution required?
- What are the possible resolutions?

Second, make sure there is an acknowledged leader who can and will run the meeting.

Third, an agenda should be made out in advance of each scheduled meeting, and it should be passed out to the attendees early enough for any necessary corrections. Make it clear to those present that the agenda will be followed; only one person will speak at a time; there will be only one meeting going on; everyone is expected to stay until the meeting is adjourned; and the meeting will go on until all items are covered.

### HOW TO LEAD A MEETING

1. The leader should make a brief statement of the issue(s) to be discussed. Make certain that each item is understood by the group. Then in discussing each item...
2. Ask for any additional information, opinions, etc.
3. Frequently summarize the discussion.
4. Remember, the leader must not enter into the discussion. His job is to direct and to lead.



5. Ask for possible resolutions together with evidence to support each.
6. Keep the discussion on course, and when the discussion bogs down, make a final summary and call for a vote.
7. If possible, appoint a person to be responsible for any necessary action resulting from a vote.
8. Do not attempt to run the meeting by the rules of parliamentary law. However, when a committee exceeds about 12, you should require anyone wishing to speak to be recognized by the leader.
9. To keep the meeting moving the leader must:
  - Keep track of the elapsed time compared to the allocated time.
  - Speed up the tempo of the meeting if it lags.
  - Remind speakers to make their talks brief.
  - If someone tries to talk too often or too long, tactfully interrupt.
  - Discourage the person who strays from the subject.
10. Above all, see that everyone has the opportunity to take part. However, never force a person to share his views.

## **HOW TO PARTICIPATE EFFECTIVELY**

Meetings are more efficient when each participant adheres to the following guidelines:

1. Remain seated during the meeting, and refrain from making distracting noises or other disturbances.
2. Be a courteous listener and do not interrupt other speakers.
3. If possible, talk from your chair.
4. Speak in an easy conversational tone of voice.
5. Talk only on the issue before the committee.
6. Support your case with concrete evidence.
7. Speak as briefly as possible, and hold down the number of times you take the floor.
8. Be tactful when questioning a point made by another. Don't dispute or argue. Rather, seek to find out the why of the proposition. When the reasoning leading to another's point of view is revealed, you may indeed find either that you agree with him or that you can turn up a flaw in his reasoning without creating an unpleasant confrontation.



## **CAUTION**

These guidelines are intended for use in relatively closed meetings attended by selected people. Under such circumstances, it is proper and efficient to tightly control the meeting. Public meetings, on the other hand, should not, or may not, be so tightly controlled. People in such meetings need greater freedom for expression. Nevertheless, public meetings should be ordered and should stay on the subject.



## APPENDIX E

### SOME SAMPLE GOALS AND PROGRAM ALTERNATIVES

#### **GOAL 1**

AWARENESS—Develop broad and continuous public and private-sector awareness of fire danger and consequences through news media campaigns.

##### **Program Alternatives**

1. PRINTED MEDIA CAMPAIGN—Establish local newspaper campaign to report fires and their consequences, including responsibility, human suffering, and indirect losses. Responsibility for fires should be publicly fixed and heroic citizens' acts publicized.
2. TELEVISION—Provide for TV coverage of fires—try for spectacular and grim details—emphasize unnecessary human suffering and loss.
3. EDITORIAL PROGRAM—Establish newspaper (and possibly TV) editorial programs pointing up any fire protection system deficiencies—such as may exist in land use, codes, suppression capabilities, ordinances, etc.

#### **GOAL 2**

COMMUNITY INVOLVEMENT—Foster active and continuous government, industry, and citizen involvement in all aspects of fire prevention and control.

##### **Program Alternatives**

1. SCHOOL PROGRAM—Establish an integrated public (and private) school program that provides lecture-demonstrations by teachers (on rotating assignment) once per month in a classroom setting. These lecture-demonstrations are graded to student achievement levels, culminating in fire science sophistication suitable to the high school senior science curriculum.
2. MERCHANT'S ASSOCIATION—Commercial Occupancy Risks—Foster a Merchant's Association Committee structure to conduct occupancy self-inspection/policing programs citywide. Support programs with half-day City Manager's Seminars for committee chairpersons. Seminar content should be "packaged" for progressive (over a 3 year period) indoctrination in commercial occupancy risks, codes, and hazard reduction. Seminar series repeat every 3 years.
3. INDUSTRIAL MANAGERS—Industrial Occupancy Risk—Establish an invitational program of semi-annual City Manager's Industrial Management Seminars designed to progressively build fire safety awareness, knowledge, and technical comprehension (among other subjects). Seminar format and content similar to commercial occupancy risk seminars but keyed to unique characteristics of industrial activities.



4. GOVERNMENT—Establish a City Manager's Interagency Fire Safety Seminar, meeting quarterly, with alternate fire science workshop sessions and agency presentations regarding responsibilities and activities in fire prevention and control.

### GOAL 3

COORDINATED MANAGEMENT—Enable and maintain coordinated management of all public aspects of fire prevention and control.

#### Program Alternatives

1. COORDINATING COUNCIL—Establish, by ordinance or resolution, an elected official and interagency Fire Prevention and Control Coordinating Council charged with ensuring that each local government agency is aware of and carries out its responsibilities associated with fire prevention and control. The Council is also charged with responsibility for maintaining awareness of federal, state and local activities and events which impact local fire protection. The Council shall report quarterly to the City Council.
2. INSPECTION CONSOLIDATION—Consolidate all occupancy-related inspectional services, together with necessary enabling and enforcement authority. As a minimum, all health and safety code, building code, and fire code inspection services shall be included.

### GOAL 4

COST EFFECTIVENESS—Achieve regular and measurable improvements in the cost effectiveness of public fire protection.

#### Program Alternatives

1. AUTOMATION—Equip the entire apparatus fleet with remote and/or automated controls for pumps and hydrant valves.
2. DIFFERENTIAL STAFFING—Differentially staff first response companies according to anticipated time of day and geographical demand for suppression services.
3. LIGHT VEHICLES—Selectively equip low-risk-area engine companies with light attack vehicles.
4. FOAM AND FOG—Develop extensive capability (equipment and evolutions) for structural foam and/or fog attack.
5. AUTOMATIC AID—Establish reciprocal automatic aid agreements with adjacent jurisdictions such that there is no duplicate coverage capability.
6. OFFICER DUTIES—Maximize fire suppression duties of company officers.
7. FIREFIGHTER SAFETY—Provide for firefighter personal equipment that effectively protects against hostile operational environment elements and



minimizes operational metabolic cost. Provide for building collapse early warning.

8. EARLY WARNING—Equip all occupancies with early warning devices against fire (smoke and heat detectors).
9. STAFFING—Partially staff fire department with other city agency employees.

## GOAL 5

OPERATIONAL EFFICIENCY—Achieve regular and measurable improvements in the operational efficiency of public fire suppression activities.

### Program Alternatives

1. ALARMS—Provide for reduced ignition-alarm time through automatic smoke and heat detector alarms and through simplified reporting procedures such as the universal emergency telephone number 911.
2. RESPONSE TIME—Provide for reduced response time through response-route traffic management and through appropriate selection of response vehicle mobility characteristics.
3. FIREFIGHTER FATIGUE—Reduce firefighter fatigue through selection of protective equipment that minimizes metabolic cost of firefighting operations, and through provision of lightweight and/or more efficient equipment (for example, lightweight hose, rapid water).
4. TACTICS—Select and utilize response configuration and on-scene tactics which most efficiently deploy available personnel.
5. PREPLANNING—Preplan fire attack for each structure, facility, transportation artery, and natural fuel areas.
6. EMERGENCY MEDICAL SERVICE TRAINING—Train all sworn personnel to EMT-1 level and provide access to professional career development education facilities.
7. ADMINISTRATION—Improve administrative efficiency through improved records, joint purchasing, and specialized management training.

## GOAL 6

RISK REDUCTION—Plan for measurable and continuous reduction in community life hazard, combustibility, and contagion potential, through land use, architectural control, and materials control.

### Program Alternatives

1. EXPOSURE SEPARATION—Establish a land-use management policy, and adopt a general plan provision requiring separation of structures to prevent uncontrolled spread of fire from one structure to another. The separation



- characteristics to be determined using a separation formula which considers combinations of construction materials and structure heights to minimize the adverse effects of fire head radiation and fire brands transported by air currents.
2. ARCHITECTURAL CONTROL—Establish architectural control building codes designed to compartmentalize and automatically ventilate fires, and to provide for direct exit, in compartment increments of no more than 1,000 square feet.
  3. MATERIALS CONTROL—Establish materials control codes that limit the interior and exterior use of combustible materials with flame-spread rates greater than 10. Exit-route materials shall be noncombustible under ordinary conditions.
  4. IGNITION HEAT—Require that common flame sources of ignition heat be either separated or shielded from potentially adjacent combustible materials. Electrical equipment will be equipped with overload switches, ground-fault detection, or other devices designed to prevent the development of excessive heat.
  5. HOME INSPECTION—Establish an ordinance authorizing home inspections.

## GOAL 7

RESPONSIBILITY TRANSFER—Accomplish significant and continuing transfer of fire prevention and control responsibility from the public sector to the private sector.

### Program Alternative

1. SPRINKLER ORDINANCE—Enact a sprinkler ordinance requiring sprinklers in all occupancies over 1,000 square feet in area retroactively on rental, sale, or remodeling such that key areas are protected by limited-cost, low-pressure systems. New construction shall be fully sprinklered, utilizing automatic shutoff heads.
2. DETECTOR ORDINANCE—Enact a comprehensive detector ordinance requiring smoke and heat detectors in all new construction and retroactively in existing structures on sale, rental, or remodeling.
3. EXTINGUISHERS—Require fire extinguishers of appropriate size and capability in all occupancies.
4. EDUCATION—Establish a comprehensive, all-media, educational program to develop broad citizen capability in "Band-aid" fire extinguishment and escape assistance.
5. CITIZEN PROGRAM—Foster a system of citizen "block patrols" for fire safety. Primary purposes are residential inspection and risk reduction, and "first aid" fire suppression assistance.
6. DEVELOPERS—Require, as a matter of the project approval process, that new real estate developments requiring extended fire suppression capability support



the capital cost of such extended service and accept fire protection district status to the extent necessary to provide related operational revenues.

7. MUNICIPAL INSURANCE—Establish municipal fire insurance program whereby a municipally managed insurance "company" provides financial support for the fire department through premium revenues.

## GOAL 8

ARSON REDUCTION—Produce measurable and continuous reduction in the incidence of arson.

### Program Alternatives

1. FIRE BEHAVIOR RECOGNITION—Train first-in company personnel to recognize fire behavior characteristic of accelerant aided fires. Company personnel should also be aware of evidence capture and preservation methods applicable during suppression and overhaul.
2. INVESTIGATION—Train key company personnel in fire investigation and equip companies with necessary analysis devices. Investigate all fires immediately on extinguishment.
3. EVIDENCE ANALYSIS—Provide for forensic fire-cause evidence analysis, particularly as relates to first ignited material—gas chromatography is a suggested technique.
4. PERSONALITY PROFILE—Provide key command personnel with arsonist profile data to aid in identifying arson techniques and suspicious behavior.
5. MEDIA REPORTING—Establish an all-media program to publicize the detection of arson and the successful apprehension and prosecution of offenders.

## GOAL 9

POLITICAL COMMITMENT—Establish continuing commitment of the elected governing body to the proposition that unwanted fire can be reduced to a negligible level of public and private direct and indirect cost.

### Program Alternatives

1. COORDINATING COUNCIL—Require, by law, charter, or other device, that at least two members of the elected governing body participate on an Inter-agency Coordinating Council charged with the responsibility of maintaining an effective communitywide fire protection system. The authority and duties of the council shall be established by law, charter, or other device.
2. CITIZEN PROGRAM COORDINATION—Establish a legal responsibility requiring governing body members to coordinate organized citizen activities related to fire protection—on a geographic district basis.



3. REPORTING—Require that the city administrative officer report the status of fire protection semi-annually to the governing body, including changes since the last report and for the past 2 years, together with planned activities over the next year.
4. MEDIA INVOLVEMENT—Involve elected officials in all media-oriented fire prevention and control programs.

## GOAL 10

REVENUE SUPPORT TRANSFER—Transfer cost of public fire protection from the general fund to service-related revenue services.

### Program Alternatives

1. LICENSES AND FEES—Establish a commercial and industrial occupancy licensing and fee program whereby authority to engage in business is contingent on annual acceptable compliance with codes and practices.
2. CODE CITATIONS—Establish stringent code-violation citation program.
3. DEMAND CHARGES—Establish a schedule of fire demand charges for occupancies providing excessive risk in terms of structure height, content, activities, etc.
4. INSURANCE PAYMENT—Encourage, as a matter of policy, all occupancy fire insurance which incorporates a payment-for-fire-suppression clause.
5. BENEFIT POOLS—Establish insurance tax pools for retirement benefits and fire protection incentives improvement awards.

## GOAL 11

LIFE STYLE—Encourage fire-safe citizen life style characteristics through public intervention.

### Program Alternatives

1. NEGLIGENCE CITATIONS—Establish, in conjunction with a fire investigation program, a schedule of negligence citations for fires deemed to be preventable through ordinary precautions.
2. PUBLIC DISCLOSURE—Publicly expose in the media all negligence citations as part of a fire safety awareness campaign.
3. INSURANCE PREMIUMS—Encourage insurance premium reductions to occupancies demonstrating consistent fire-safe practices.



## **GOAL 12**

**MONITORING**—Provide for continuous assessment of fire protection needs and the degree to which the fire protection system satisfies them.

### **Program Alternatives**

1. **FIRE ANALYSIS**—Analyze each fire of over \$1,000 direct loss as a fire protection system failure. Determine, in each case, what could have been done to first prevent ignition, and, failing that, to reduce loss to a negligible level. System malfunctions are to be corrected, and system deficiencies to be subject to system improvement consideration by an intra-agency coordinating council.
2. **COST/LOSS REPORTS**—Prepare semi-annual cost/loss reports comparing direct and indirect losses with directly associated suppression costs. Suppression costs will include a pro rata share of all public costs of maintaining the fire protection system allocated to fires, according to time and materials.



## APPENDIX F

### OVERVIEW OF THE FIRE DEFENSE AND EMERGENCY RESPONSE PLANNING PROCESS: THE ROLE OF THE PLANNING TEAM

Once a community has established the need for fire defense and emergency response planning, the mayor or city manager is responsible for managing its implementation. The first step in this process is the creation of an interdisciplinary planning team composed of members from various city departments.

Each city department represented on a planning team has either a direct or indirect involvement in fire protection. The involvement of members in each key agency creates an integrated approach to addressing all fire protection issues. Through their interaction, a decisionmaking framework is established which maximizes the cost-effectiveness of a fire protection delivery system.

It is important to keep in mind that the composition of communities varies politically, administratively, and demographically. Therefore, the composition of a planning team which works well in one community might not work equally well in another. Each community, therefore, must decide on the best mix of members for their respective planning team.

For example, Jacksonville, Florida, selected members from planning, public safety, building, fire, water, finance, and sheriff's departments. Although this planning team provides a good blend for Jacksonville, it might not be an appropriate mix for the city of Fort Collins, Colorado, another fire defense and emergency response planning community. Generally, fire defense and emergency response planning teams include representation from at least the fire, police, city planning, and building departments.

The planning team then works with a citizens advisory committee to reach a consensus on the acceptable risk in the community and the necessary components of the fire protection delivery system. A diverse range of civic groups should be represented on the advisory committee to insure widespread community support for this undertaking. In the next issue of the Master Planning Resource Exchange Bulletin, the structure and workings of a citizens advisory committee will be examined (see Appendix G).

After its initial meeting with the citizens advisory committee, the planning team should begin to tackle its primary responsibilities. These include: collecting and analyzing data, defining the local fire problem, establishing goals and objectives, developing alternative fire protection delivery systems, and recommending the most cost-effective system to the local governing body.

The planning team should be organized as a permanent committee, although the team's composition may change as old members leave and new people are added. The departments included in the original team should always be represented, however, in order to preserve the professional continuity of the planning team.

Each person on the planning team should have special knowledge to contribute to the master planning process, and the team leader should direct this knowledge toward specific objectives, such as delineating clear responsibility for implementing the objectives of the plan, and timing the implementation of the master plan so as not to interfere with local elections or contract negotiations.



Since fire/emergency response planning involves many diverse elements from the community, management personnel should anticipate some minor operational problems during the first few months of planning. There may be a delay in obtaining and analyzing local data, so a time lag should be considered in drawing up a timetable for reaching the goals set forth in the Plan.

A final point to remember is that the adoption of the Plan does not complete the planning process. The planning process must be dynamic, and is therefore subject to periodic review in order to effectively meet community change and progress. Using these planning steps as guidelines should enable cities of all sizes to plan more effectively.



## APPENDIX G

### OVERVIEW OF THE FIRE DEFENSE AND EMERGENCY RESPONSE PLANNING PROCESS: THE ROLE OF THE ADVISORY COMMITTEE

Involvement by citizens outside the fire department in planning and policy analysis is a relatively new phenomenon in the fire service. Past planning efforts have focused on individual issues (such as fire station location) and have limited the decision-making sphere to fire department administrators and supporting agencies.

Fire defense and emergency response planning, a concept introduced in the early 1970's, has significantly altered the traditional approach to decisionmaking and the framework for decision analysis. Single-issue planning, once reserved for fire department staff, has undergone a metamorphosis. Today, a number of interdisciplinary agencies are working with citizens to develop comprehensive fire protection plans.

Citizen advisory groups are composed of broad community representation. Typical members would include representatives from chamber of commerce, retail merchants association, construction industry, public school system, local industry, private interest groups, citizens at large, etc. Through citizen interaction with the planning team, a Plan can be developed which represents the desires of the community.

It is important to keep in mind that the composition of communities varies politically, administratively, and demographically. Therefore, the composition of an advisory committee which functions well in one community might not work equally well in another. Each community, therefore, must decide on the best mix of members for its respective advisory committee.

Selection of the advisory committee members should be made by the local governing body on the basis of recommendations from the planning team or on the basis of whom the local governing body feels best represents the community. This decision should be made in the latter stages of the planning phase (as described in Fire Protection Master Planning) just prior to data collection and analysis.

Activation of the advisory committee should not take place until the data analysis phase is completed. If the committee is activated too early in the process, a significant time lag will take place before actual decisionmaking begins, and committee members will lose interest in the plan. This problem has surfaced in a number of fire/emergency planning communities and should not be overlooked.

After the committee has been activated, several meetings should be held with the planning team. At a minimum, meetings should be held at key decision points to assure the committee's continuing involvement throughout the process. Key decision points include:

- The definition of the fire problem,
- Approval of goals and objectives,
- Evaluation of alternative programs,



- Approval of the program recommended by the planning team,
- Endorsement of the selected program presented to the local governing body for approval.

If the advisory committee is actively involved throughout the planning process, the planning efforts should proceed smoothly with a minimum of misunderstanding and confusion. The advisory committee can be of much assistance in educating the community about the Plan being developed. Ongoing interaction should improve the quality of the fire defense and emergency response of the master fire protection plan and enhance the probability of approval from the local governing body.

This advisory committee should be organized as a permanent entity, although the committee's composition may change as old members leave and new members are added. The agencies included in the original committee should always be represented in order to maintain the representative cross section of the community.

As mentioned in the first article on the role of the planning team (Appendix F), an important point to remember is that the adoption of the Fire Defense and Emergency Response Plan does not complete the planning process. The planning process is dynamic and is subject to periodic review in order to effectively meet community change and progress. Using these planning steps as guidelines should enable cities of all sizes to plan more effectively.

